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Textile World

DECEMBER, 1943

Organizing Labor-Management Committees

SEE PAGE 64

"For Outstanding Services Rendered"

The Bureau of Yards and Docks
Navy Department
Commends
Robert and Company, Incorporated

For outstanding services rendered—
Their devotion and unswerving fidelity
to the tasks in hand when preparing
Plans and Specifications for Naval Air
Station Facilities and Landing Fields
in furtherance of
The Navy War Construction Program

Chief Bureau of Yards and Docks

This 29th day of March 1943

We are grateful to have earned this citation from the Navy Department . . . proud of our record of wartime service to our country on many important tasks for the United States Navy, as well as other divisions of our government.

PARTIAL LIST OF WARTIME PROJECTS EMPLOYING ROBERT AND COMPANY SERVICES

U. S. Naval Air Station, Corpus Christi, Texas
U. S. Naval Air Station, Jacksonville, Fla.
U. S. Naval Air Station, Pensacola, Fla.
Marietta (Bell) Aircraft Assembly Plant, Marietta, Ga.
Army Service Forces Depot, Atlanta, Ga.
Warner Robins Field, Wellston, Ga.
Navy Lighter-than-Air Base, Brunswick, Ga.
Seaplane Training Base, Banana River, Fla.
Bermuda Naval Base, Bermuda
San Juan Naval Base, Puerto Rico

ROBERT AND COMPANY

INCORPORATED

Architects and Engineers

★ ATLANTA ★

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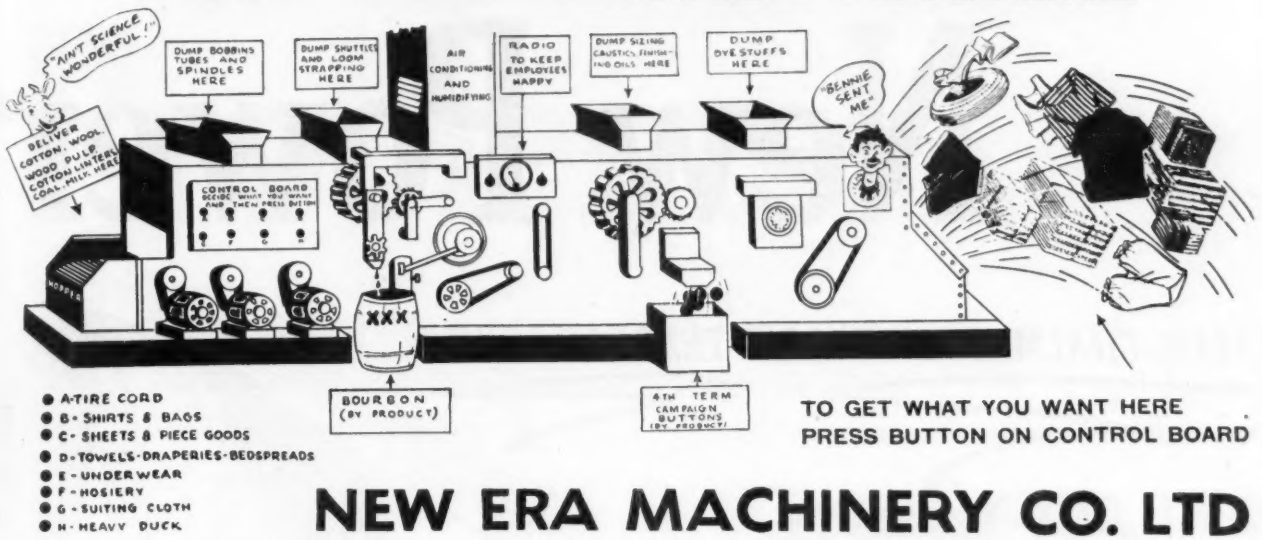
PREVIEW
POST WAR TEXTILE MACHINE


"AIN'T SCIENCE WONDERFUL!"
DELIVER COTTON, WOOL, WOOD PULP, COTTON LINTERS, COAL, MILK HERE
DUMP BOBBINS TUBES AND SPINDLES HERE
DUMP SHUTTLES AND LOOM STRAPPING HERE
AIR CONDITIONING AND HUMIDIFYING
RADIO TO KEEP EMPLOYEES HAPPY
DUMP SIZING CAUSTICS FINISHING OILS HERE
DUMP DYESTUFFS HERE
"BENNIE SENT ME"
CONTROL BOARD DECIDE WHAT YOU WANT AND THEN PRESS BUTTON
HOPPER
XXX
BOURBON (BY PRODUCT)
4TH TERM CAMPAIGN BUTTONS (BY PRODUCT)
A-TIRE CORD
B-SHIRTS & BAGS
C-SHEETS & PIECE GOODS
D-TOWELS-DRAPERIES-BEDSPREADS
E-UNDERWEAR
F-HOSIERY
G-SUITING CLOTH
H-HEAVY DUCK
TO GET WHAT YOU WANT HERE PRESS BUTTON ON CONTROL BOARD

NEW ERA MACHINERY CO. LTD

From the Original by COTTON'S Staff Artist

Now It's

GUNS

Our Post-War Looms

Will Not do all the artist's imagination foretells in the sketch above.

They will be the same efficient High Speed X Series looms some mills were able to buy before war came to demand all the attention and genius and productive capacity of America's machine-builders.

They will run 20% to 30% faster and produce that much more cloth every hour than the E Model Series looms that have done such noble service producing cloth for our armed forces.

When the Time Comes

We will resume loom-building where we left off. But we have not stood still.

Our engineers and designers who have been able to improve guns and other tools of war will go back to loom-building with a new zest, with increased skill and with new ideas and methods born of recent experience.

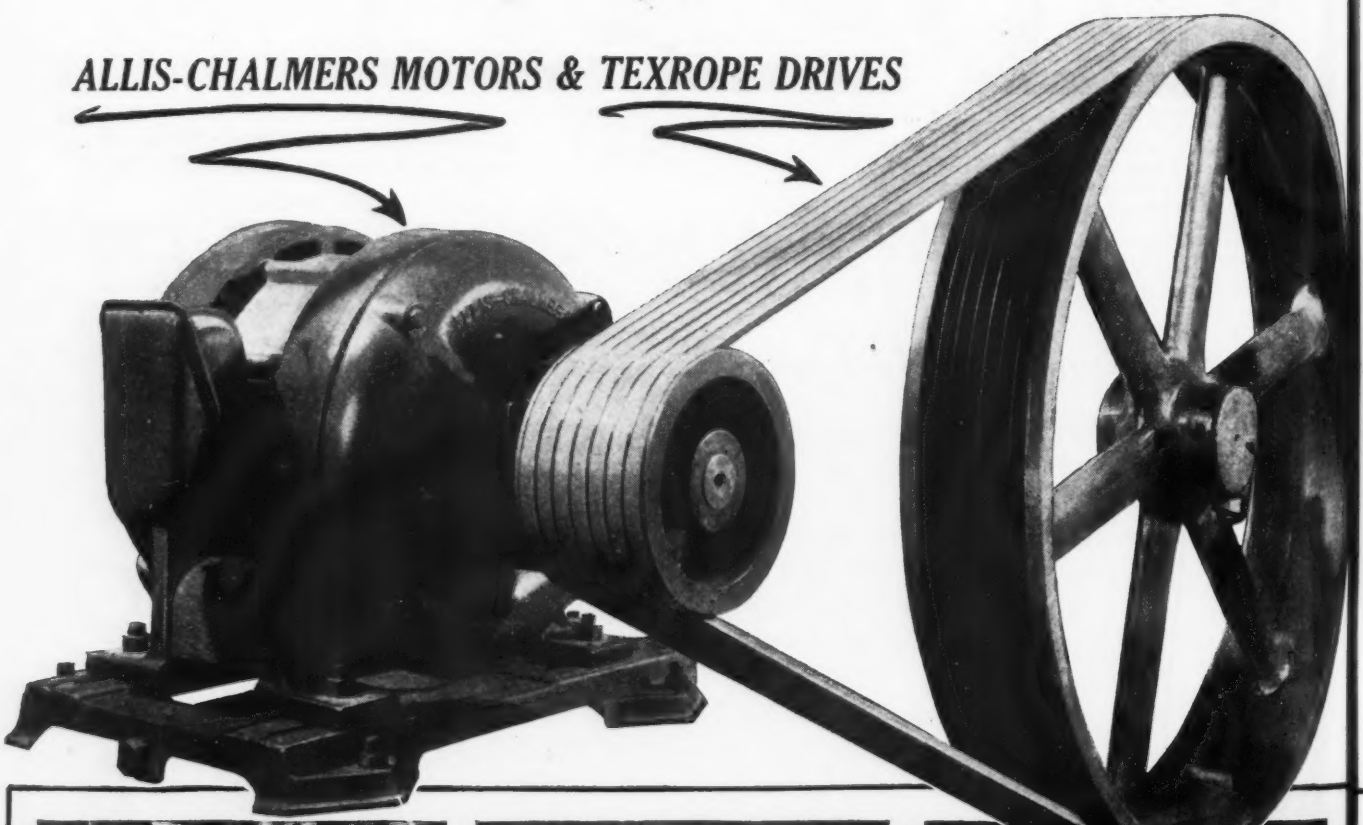
LOOMS

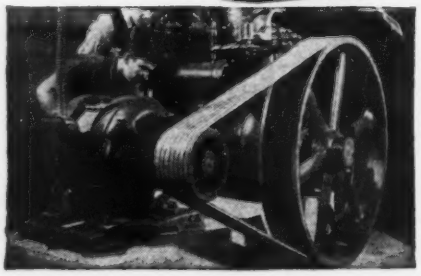
When War Needs Permit

DRAPER CORPORATION

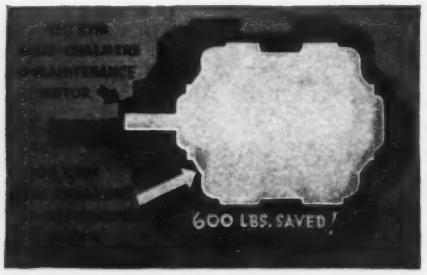
Here's the Team New Power

ALLIS-CHALMERS MOTORS & TEXROPE DRIVES

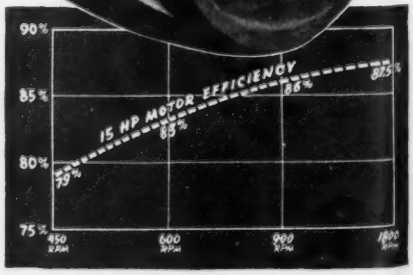




1 In most applications, an 1800 rpm motor with Texrope Drive will ably do the job of a lower-speed, direct-connected motor —at lower cost in money *and materials!*



2 When you buy an 1800 rpm instead of 450 rpm 15 hp squirrel-cage motor, for example, 600 lb are saved. And *you* save well over $200 — with drive figured in!



3 Note that efficiency rises from 79% for the 450 rpm motor to 87.5% for the 1800 rpm motor. The 1800 rpm motor saves you over 30 kw/24 hr. day.

WE WORK FOR VICTORY — WE PLAN FOR PEACE

ALLIS-C

to Solve These Problems!

1. HOW TO DRIVE LOW SPEED MACHINERY WITH HIGH SPEED MOTORS? Allis-Chalmers Texrope Drives can "gear down" motor speeds over a range of 7 to 1. They're compact, highly efficient, protect your equipment by absorbing shock.

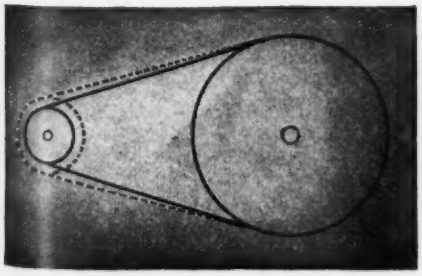
2. HOW TO DRIVE A MACHINE AT DIFFERENT RATES WITH A SINGLE SPEED MOTOR? Texrope Adjustable-Speed Drives give you infinite speed range up to 375%. And in Allis-Chalmers' full line of Texrope Drive equipment you'll find the *right* range for your machines . . . thus avoid paying extra for more speed than you need.

NOW THAT low-speed and multi-speed motors are sharply restricted, get the *flexibility* you need by teaming up available types of Allis-Chalmers Lo-Maintenance Motors with Texrope Drives.

As America's only builder of *both* motors and V-belt drives, Allis-Chalmers has long studied and advocated their use in proper combination. Today, you benefit from Allis-Chalmers pioneering when you ask for—and get—the *right* combination of Lo-Maintenance Motor and Texrope Drive.

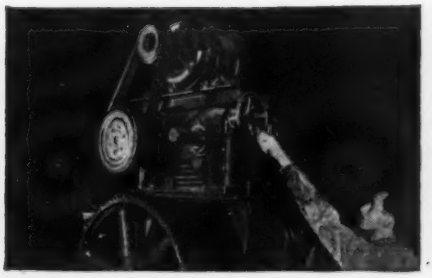
Call on any A-C district office or write to ALLIS-CHALMERS MFG. CO., MILWAUKEE 1, WIS.

A1647



4 Infrequently needed speed changes can be had by changing from one size motor sheave to another. Juggling *complete* drives, range is 1:1 to 7:1.

5 With the Allis-Chalmers Vari-Pitch Sheave, you can increase or decrease speed by adjusting sheave diameter . . . obtaining an *unbroken* series of speeds!



6 Allis-Chalmers Vari-Pitch Speed Changer gives you infinite changes at the turn of a wheel — within 3.75 to 1. It's compact, flexible, *efficient!*

A-C ALLIS-CHALMERS

LO-MAINTENANCE MOTORS
TEXROPE DRIVES

"A Happy Ship"

Comments by Henry G. Lord

Readers of that wonderful sea tale, "Captain Hornblower," will recall the strong-arm methods by which ships' crews were recruited by His Majesty's Navy in the eighteenth century. If a captain about to set sail didn't have a full crew, he would kidnap any likely man in the port; or, when he got to sea, he would stop some merchant ship and take the men he needed from her.

Yet Captain Hornblower could make "a happy crew" and what he called "a happy ship" out of such a heterogeneous lot of men gathered from all quarters. He knew that unless he had a happy ship, he could not go into action with confidence of victory.

This spring, two centuries later, when reading the epic story of a destroyer's recent adventures in the Mediterranean, I came across the same phrase—"It was a happy ship"—which is an expressive way of saying that the entire crew, from captain to galley boy, was a well-organized, busy group of men who took pride in their ship and who respected their officers because their orders were just but firm. Every one of them knew his job so that everything clicked harmoniously. Men like to work that way and in orderly surroundings.

You will recall another great sea story—"Mutiny on the Bounty." The "Bounty" was *not* "a happy ship" and its voyage ended in tragedy.

When I used to visit among the mills, I could easily sense "a happy mill"—a mill where not only the relations of the management, the superintendent, and the overseers were evidently good, but, most noticeable of all, the relations between foremen and operatives were good also.

These things are hard to define in words, but we all recognize them. A mill reflects the personality of its management. Especially is that so in the administration of the departments. I don't know that I ever heard the expression "a happy mill" to describe what I have in mind, but we all know such establishments.

The captain of a ship learned long years ago by experience that it is the "happy ship" that makes the quickest and safest voyages or, if a warship, the best record in battle. Wise and successful captains plan definitely to have "a happy ship." I wonder if mill managers have that same objective so clearly in mind.

Of course, by "a happy mill" I do not mean one where every one comes to have a good time, where there is no discipline, where each one follows his own inclinations. That is manifestly absurd; it wouldn't long *be* a happy mill. I mean a mill where the same care and attention are given to building good team work and kindly and just relations with the human organization that are given to maintaining satisfactory operation of the machinery and processes.

This Christmas season is an appropriate time to check up on your plans for "A Happy Mill."

HENRY G. LORD, *Vice-President of McGraw-Hill Publishing Co. and Founder of Textile World*

SUNOTEX OILS

increase yield by 3%...improve scourability and finished stock

Wartime wool requirements are tremendous, taxing the facilities of textile mills throughout the nation. This, plus the fact that supplies were dwindling, resulted in a certain manufacturer's decision to combat costly losses in processing.

To study the problem, a Sun Textile man was called in. After analyzing their needs for a processing oil, a Sunotex Oil was recommended. Previously, with competitive products, they were confronted with waste in processing that greatly reduced their yield. Now, under the same operating conditions, the penetrating qualities . . . plus the superior wetting out properties of Sunotex Oils are producing a 3% greater yield in the wool by weight.— a pound free in every 33. In addition, the better scourability is producing cleaner wool and whiter finished stock.

Whatever your processing problem — wool, rayon or nylon — a Sun Textile man — one of those "Doctors of Industry" can help you to improve both quality and production in your plant. His skilled services and expert knowledge, coupled with the products he has to offer, are a definite step in the right direction. Write

SUN OIL COMPANY, ***Philadelphia 3, Pa.***

SUNOCO

SUN INDUSTRIAL PRODUCTS *HELPING INDUSTRY HELP AMERICA*

From Cost-minded Mills
THE SAME STORY YEAR AFTER YEAR!

1930 " . . . the cards will run almost indefinitely without stripping . . . we expect to send you an additional order." *

1936 " . . . we feel you are conservative in your claims." *

1940 " . . . we are very well pleased with the performance of this equipment . . . we have found definite savings as well as more uniform work." *

1943 " . . . they have paid for themselves many times over . . . we could not get along without them." *

* Names on request.

The satisfaction expressed in these statements from mill superintendents is proof of the efficiency and proven performance of the Saco-Lowell Continuous Card Stripper. Its many practical and important advantages may be summarized as follows:

1. Saving of Cotton
2. Increased Production
3. Improvement in Quality of Yarn
4. Cleaner Card Room
5. Saving in Labor Cost
6. Reduction in Power Consumption

The Saco-Lowell Continuous Card Stripper is easily and quickly installed on all Saco-Lowell Cards . . . and in many cases on those of other manufacturers.

Write for bulletin giving complete details.

Saco-Lowell
CONTINUOUS CARD STRIPPER

SACO-LOWELL SHOPS

60 Batterymarch Street, Boston, Massachusetts • Charlotte Greenville Atlanta

Specify
SYNTHETIC RUBBER PRODUCTS

backed by the "know-how" of the world's finest rubber research laboratory

NOW that most industrial rubber products are being made from synthetic rubber, these facts are doubly important to you:

In Goodyear products you get not only the benefit of Goodyear's twenty years in developing synthetic compounds —

You get products advantaged by the technical resourcefulness of the world's finest rubber research laboratory — the new Goodyear Laboratory equipped with every device of modern science for pre-testing performance.

As a result, in Goodyear products you get synthetic compounds that are best suited for each specific application — products that are quality-tested!

You get, too, the time-proved excellence of Goodyear construction that has always insured longer wear — performance enhanced by many exclusive Goodyear structural features.

And last but not least you get the assistance of the G.T.M. — Goodyear Technical Man — in determining the right product for your job. To bring him to your plant, just phone the nearest Goodyear Industrial Rubber Goods Distributor, or write Goodyear, Akron 16, Ohio or Los Angeles 54, California.

GTM -Specified

GOODYEAR INDUSTRIAL RUBBER PRODUCTS made from synthetic rubber include

Transmission, Conveyor, Elevator and V Belts · All types of Hose · Molded Goods · Tank Lining · Packing · Military Products

GOODYEAR

THE GREATEST NAME IN RUBBER

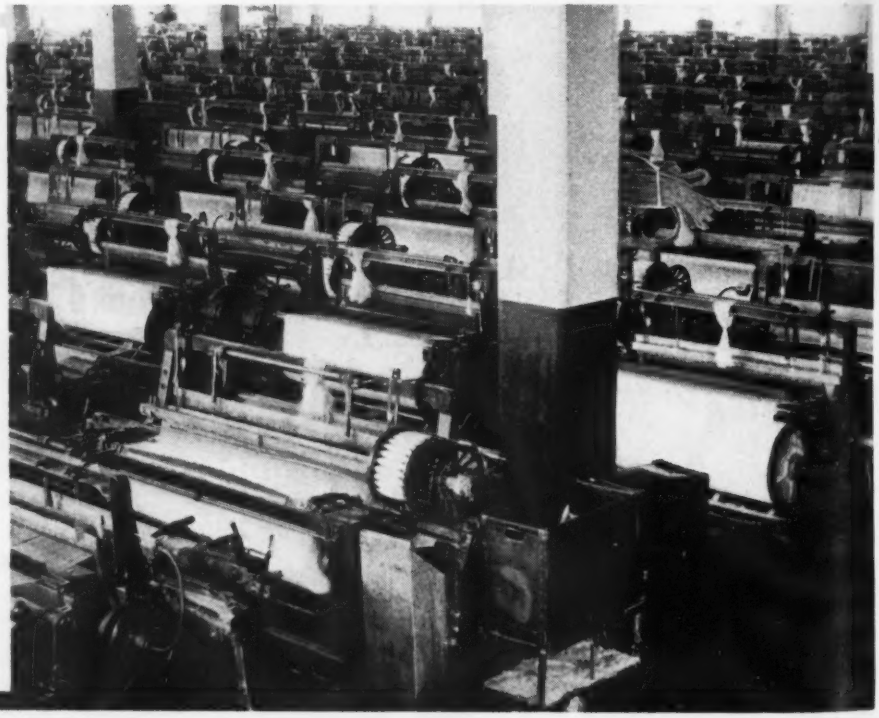
BUY WAR BONDS to Speed Victory

POWER TO ATTACK
relies on power to *produce.* For stepped-up production from *TEXTILE* equipment use . . .

Official U. S. Army Signal Corps Photograph

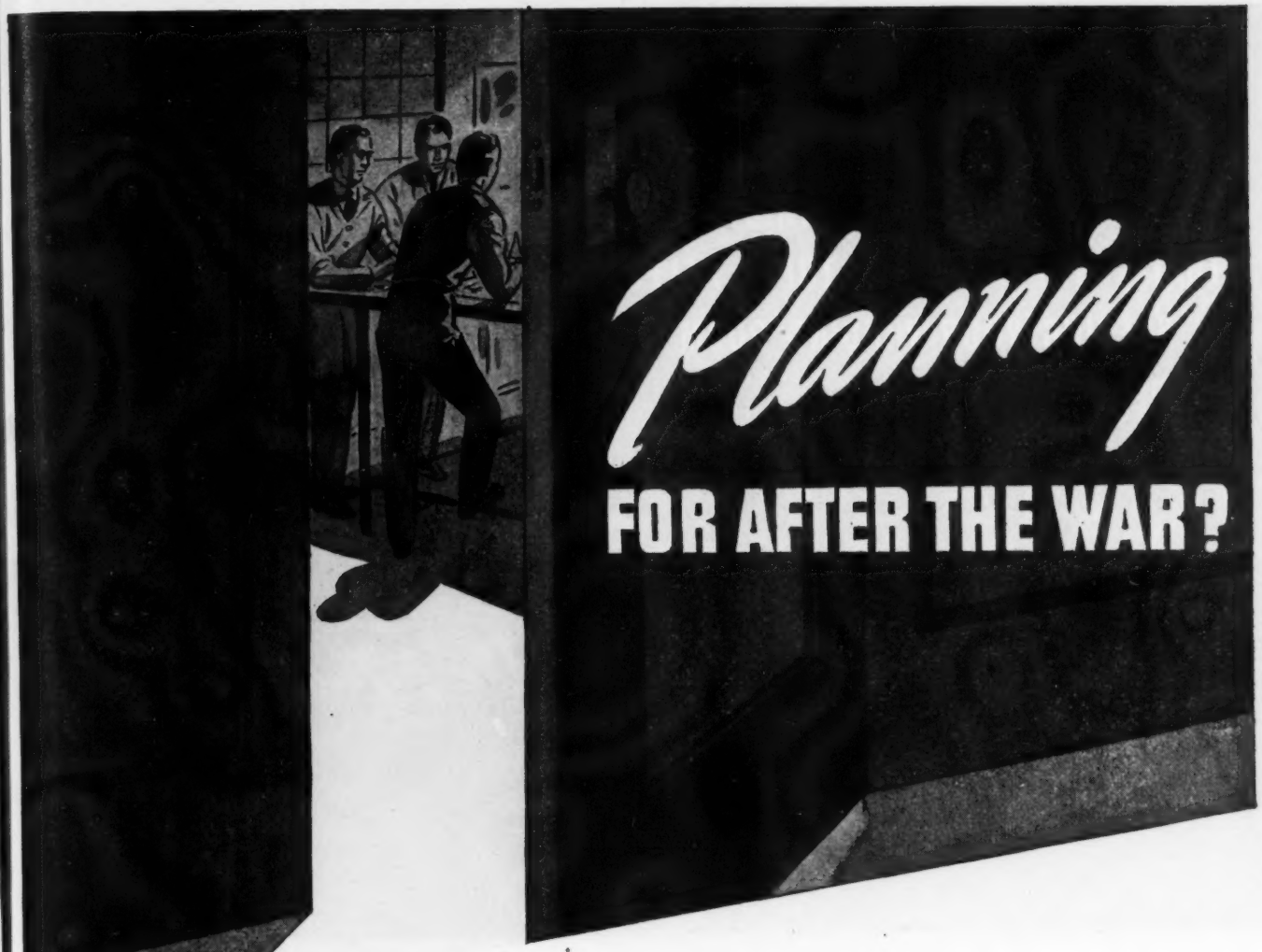
. . . . . SINCLAIR LUBRICANTS . . .
Lily White Oils provide clean spindle lubrication with low power consumption at highest speeds. No-Drip Lubricants give dependable, non-throw service on top rolls. For bearings, Sinclair Bearing Grease AF has the additional qualities of *water solubility* and color *neutrality.* Sinclair also provides specialized oils for *Knitting Machinery.*

(Write for "The Service Factor"—published periodically and devoted to the solution of lubricating problems.)



SINCLAIR TEXTILE LUBRICANTS

FOR FULL INFORMATION OR LUBRICATION COUNSEL WRITE SINCLAIR REFINING COMPANY (INC.), 630 FIFTH AVENUE, NEW YORK 20, N. Y.



Planning
FOR AFTER THE WAR?

The capacity to resist strong chemicals, lightness and strength which for ten years, Formica has been demonstrating in a steadily enlarging number of applications in production machinery for Rayon Textiles, entitles it to an important place in your consideration of after-the-war equipment.

In most parts where it has been used it has multiplied useful life several times. It has been applied for spinning buckets, bucket covers and for many other purposes where its lightness, smooth surfaces, and high strength are valuable.

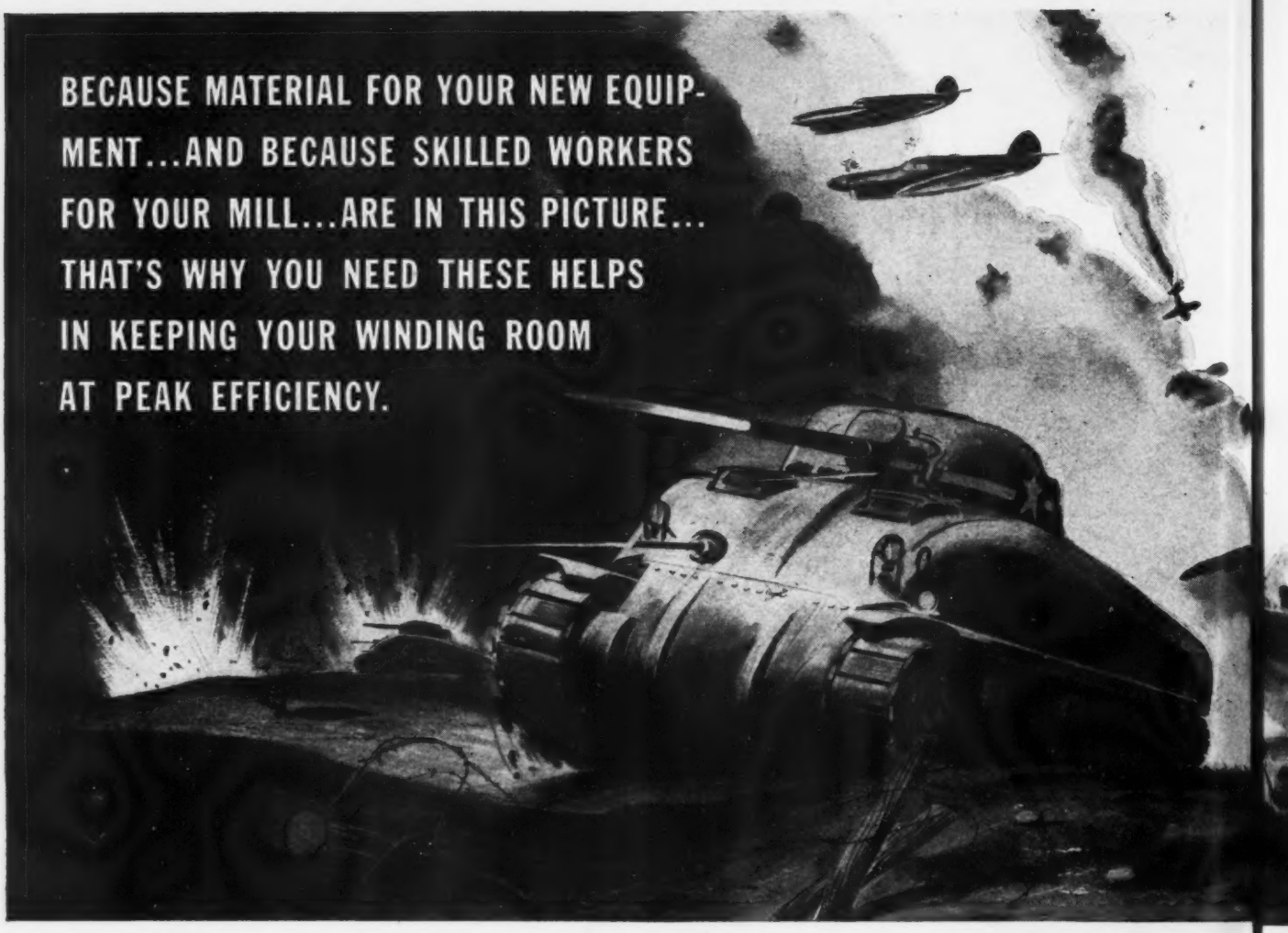
Our engineers will be glad to advise you in detail regarding its characteristics and adaptability to your requirements.

ARMY E NAVY

FORMICA

THE FORMICA INSULATION COMPANY

4676 Spring Grove Avenue
Cincinnati 32, Ohio


BECAUSE MATERIAL FOR YOUR NEW EQUIP-
MENT...AND BECAUSE SKILLED WORKERS
FOR YOUR MILL...ARE IN THIS PICTURE...
THAT'S WHY YOU NEED THESE HELPS
IN KEEPING YOUR WINDING ROOM
AT PEAK EFFICIENCY.

Suggestion 1.

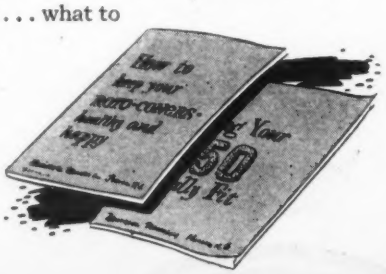
Keep Up with Winding Developments Through "Getting the Most from Winding"

"Getting the Most from Winding" gives information on recommended operation of your winding machines. Problems in connection with winding are discussed, especially those which involve keeping the machine in good order. Individual parts and attachments are described. It is published six times a year in the textile magazines and is expanded for our mailing list. A set of these booklets should be in the hands of every Universal winding machine fixer.

Suggestion 2.

Send for Universal's New Maintenance Booklets

Two recently-published booklets are the first in a series on the care of Universal Winding Machines. "Keeping Your 50 Physically Fit" and "How to Keep Your Roto-Coners* Healthy and Happy" contain practical information, in convenient form, on where, when and how to check lubrication . . . cleaning . . . adjustments to be checked regularly . . . points to be checked for wear . . . hints for the operator . . . what to look for first in case of trouble.



43-M-2 *REG. U. S. PAT. OFF. AND PRINCIPAL FOREIGN COUNTRIES

UNIVERSAL WINDING COMPANY

THE METAL that would be used in your new winding machines . . . the skilled mechanics who would be keeping your present machines in top running order . . . are heading overseas . . . leaving you with the problem of getting desired production and desired quality from equipment that may need either replacement or expert attention.

Universal Winding Company has a wartime plan to relieve your winding room worries.

The Universal Winding Machines which you are now operating were originally designed and manufactured to give you long life and trouble-free service. For example, many fast-moving parts are automatically lubricated . . . parts requiring frequent attention are few in number . . . controls and adjustments are easy to make.

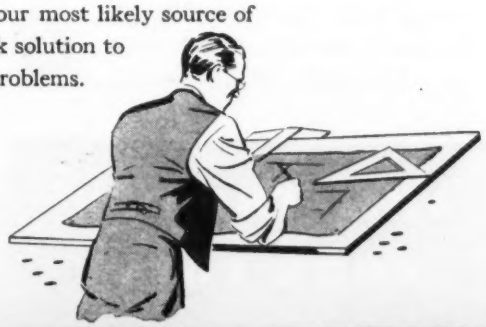
Still, as with any machinery, a good service record is due only partly to the machines themselves . . . part is due to intelligent supervision, systematic maintenance.

So here are four suggestions — which many mills have already acted upon, to help keep machines up to par when mechanics are hard to get and keep . . . and even repair parts may be delayed.

Suggestion 3.

Send Special Problems to Our Engineers

We maintain a winding room where a great many sample and experimental windings are made. If you have new winding requirements . . . or are handling a yarn with special characteristics . . . or have difficulty obtaining the production or quality you desire . . . call on our Engineering Department. Familiar with the winding of all types of yarn under all types of conditions, it is your most likely source of a quick solution to your problems.



Suggestion 4.

Have Our Resident Engineer Look Over Your Equipment

Universal maintains branch offices staffed with regional engineers, in Boston, Utica, Philadelphia, Charlotte and Atlanta, and is also represented in Chicago, Montreal and Hamilton. Part of their job is making recommendations to help keep your winding machines in top operating condition. Give them your problems when they call — in an emergency, get in touch with the nearest office.

P. O. BOX 1605, PROVIDENCE 1, R. I.

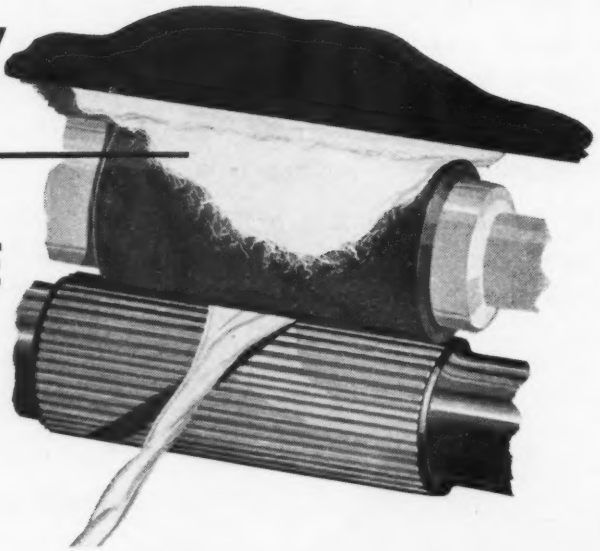
LEESONA

REG. U. S. PAT. OFF. AND PRINCIPAL FOREIGN COUNTRIES

BOSTON
PHILADELPHIA
UTICA
CHARLOTTE
ATLANTA

CORK PREVENTS "Eyebrows"

AND REDUCES CLEARER WASTE



"TODAY, every order is stamped RUSH. So I'm interested in only one thing—getting out more poundage!"

If that's *you* talking, we can help! For, one of the ways to get peak production is to minimize clearer waste and prevent eyebrows. And those are two of the things Armstrong's Cork Cots can do for you.

These cots have a higher coefficient of friction than any other roll covering in use today. The amount of clearer waste they produce is very small—and their superior "grip" places this waste well back on the clearer boards, where it belongs. Eyebrowing is eliminated, hence there are no waste accumulations to drop into the work and form slubs. Boards don't have to be cleared so often. End breakage is reduced, too. Spinners and roving tenders have more time for other work.

Additional advantages of Armstrong's Cork Cots that will help you keep production up are: *resilience*, which enables these cots to "come back" after grooving by top roll laps or hard ends; *resistance to lateral flow*, which helps maintain a true drafting surface; *durability*, which assures a long initial service life and permits rebuffing each cot three or four times. Each rebuffing costs only about one-half cent per roll, and you get four to five full-length service lives from every cot!

Such are the reasons why Armstrong's Cork Cots serve more spindles than any other roll covering. For the same reasons, *you* can profit by switching to Armstrong's Cork. Plenty of cork is available, so no priority is necessary. Get full details from your Armstrong representative, or write us for a free copy of "Modern Textile Roll Coverings." Armstrong Cork Company, Textile Products Section, 8312 Arch St., Lancaster, Pennsylvania.

BETTER RUNNING WORK

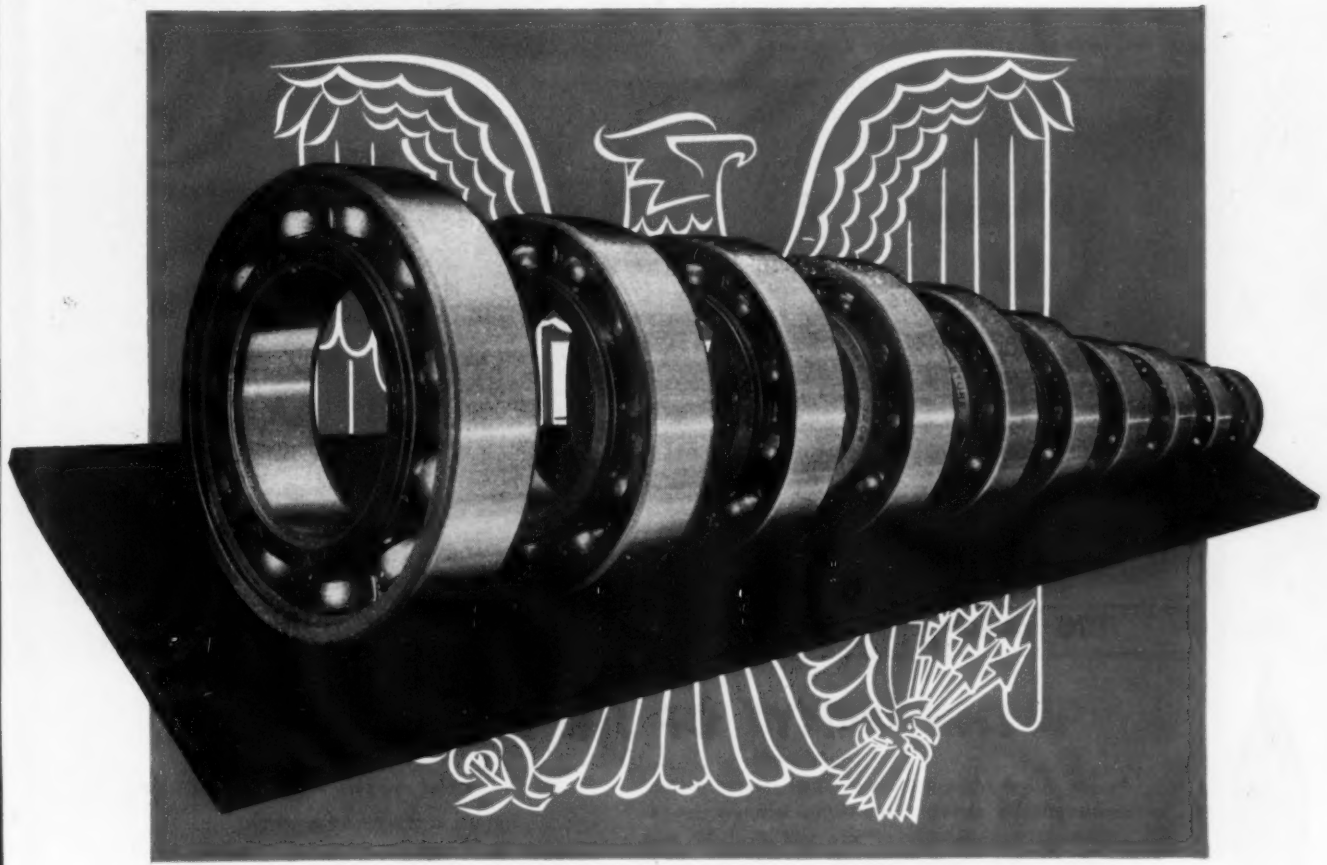
— MORE POUNDAGE

ARMSTRONG'S CORK COTS

ACCOTEX COTS • ACCOTEX APRONS

New Departure

BALL BEARINGS



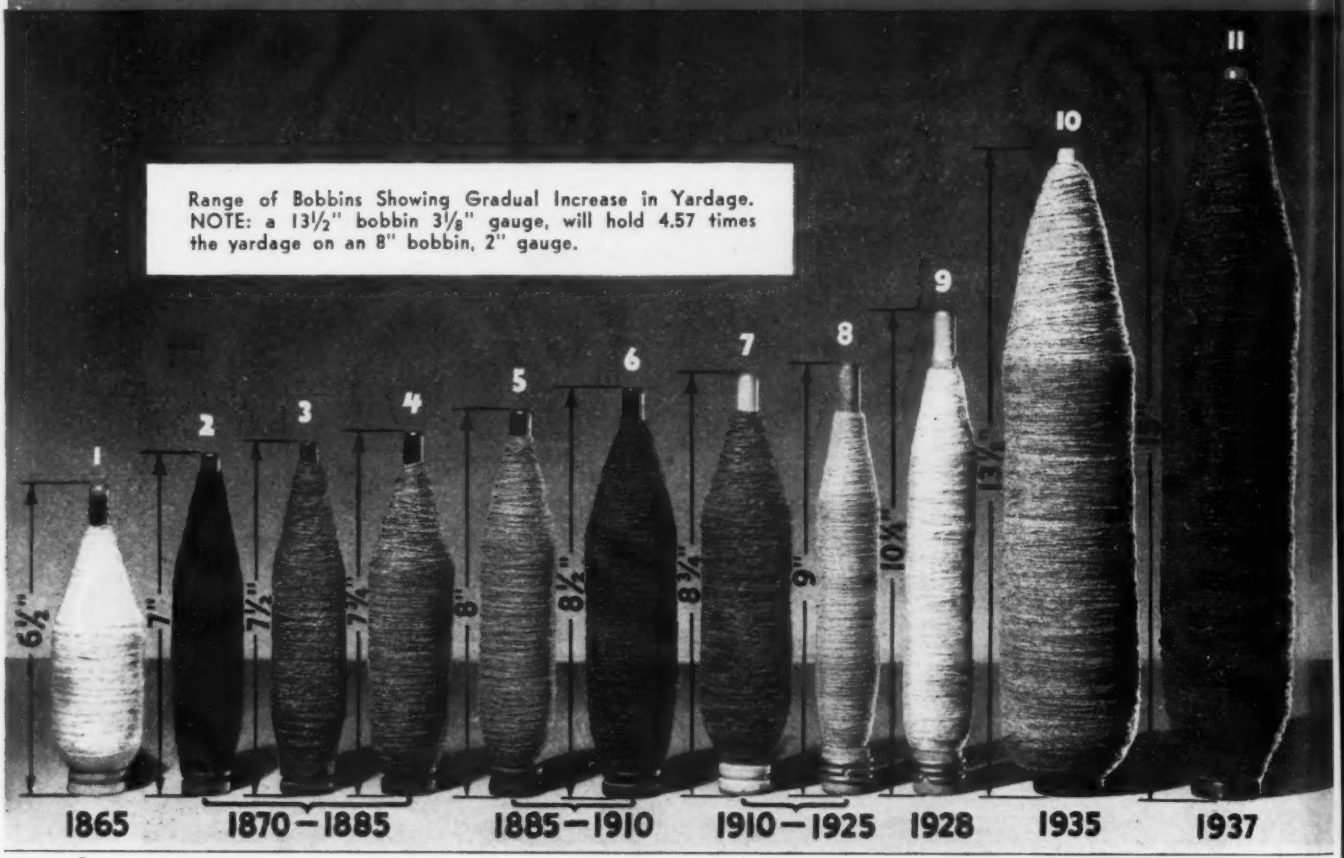
ON EVERY BATTLEFRONT

— keeping them flying, rolling, moving . . . not only at every point where shafts turn, where motion must be friction-free . . . but also where maintenance operations must be kept at a minimum.

3216

Nothing Rolls Like a Ball

JOHNSON & BASSETT



J & B Spindle Assembly with bobbin in place.

THE "WHY" OF J & B LEADERSHIP

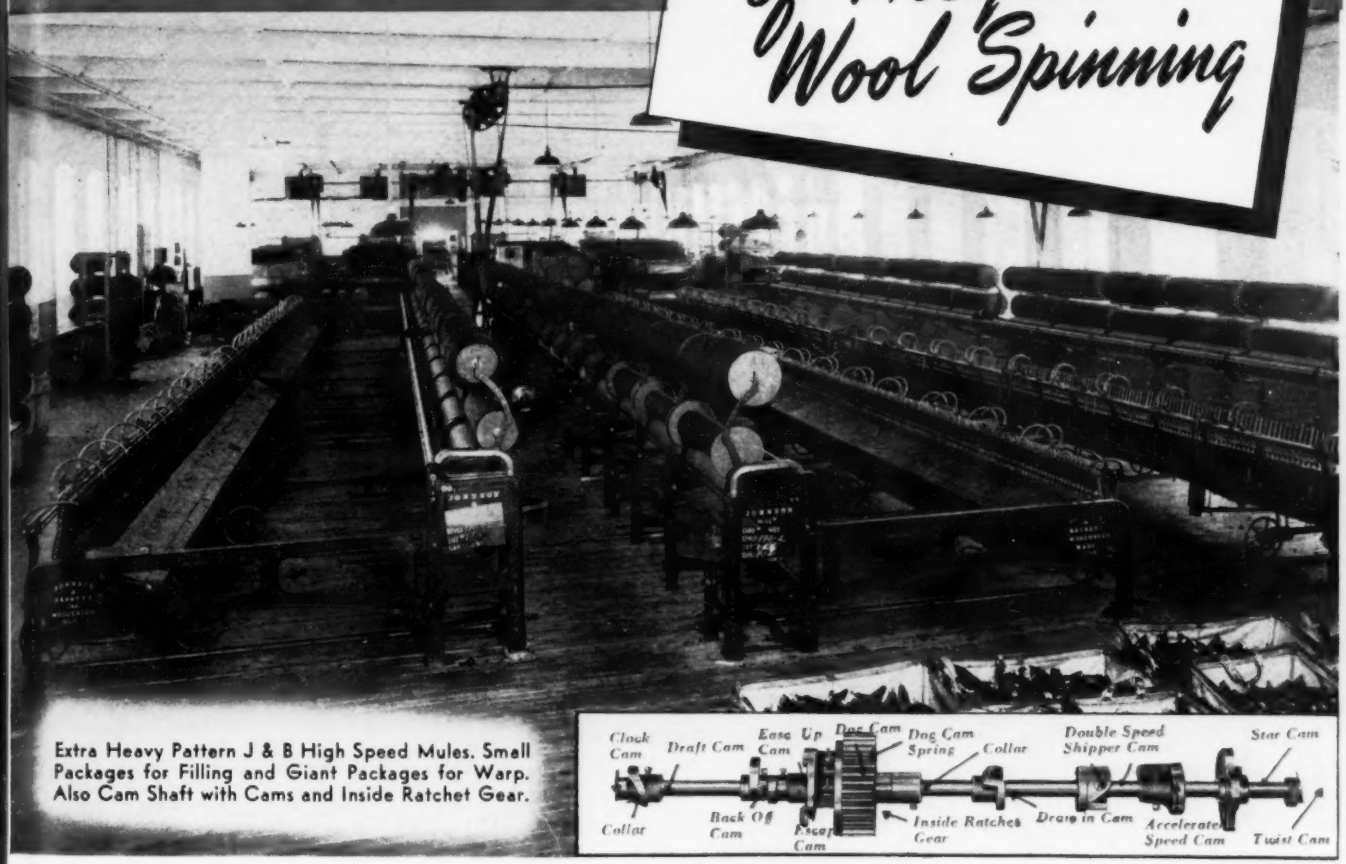
1. The J & B Mule produces a true woolen yarn,—superior in strength, elasticity, loftiness, roundness and uniformity of size and twist to that produced by frame spinning.
2. It permits inspection of the thread.
3. It will handle a much coarser roving than a frame, thereby increasing production at the card by 15 to 20%.
4. It will successfully spin short staple roving which will not hold together on a frame.
5. It requires less horse power than a frame.
6. Spindle for spindle, it will produce as much yarn as a frame, due to a practical operating speed and negligible breakage.
7. The cost of the yarn produced is at least ½ that of yarn produced on a frame.
8. Its initial cost is several times less than that of a frame.
9. Its cost of upkeep is exceptionally low.
10. The J & B filling package does not require rewinding for the automatic bobbin.
11. Changes for spinning different types of yarn on the J & B Mule are easily and quickly made.
12. Mule bobbins cost less than frame bobbins.

JOHNSON & BASSETT, Inc.

ESTABLISHED IN 1870

MULES

The Epitome of Progress in Wool Spinning



Extra Heavy Pattern J & B High Speed Mules. Small Packages for Filling and Giant Packages for Warp. Also Cam Shaft with Cams and Inside Ratchet Gear.

THE "HOW" OF J & B LEADERSHIP

1. Great rigidity of carriage maintains alignments.
2. Ball bearing cylinder boxes permit the spindles to attain maximum speed simultaneously with the travel of the carriage; reduce horsepower required and oiling to once in 6 months.
3. Heat Treated Ball Bearing Spindles, mounted in individual metal bolsters (steprail eliminated), permit any spindle speed required to spin successfully any mixture or blend of stocks without vibration.
4. Collar Board is all metal with Durex oilless brushings, which require oiling only once in 3 months.
5. Rim Band Pulleys in center and on Quadrant and accelerated Speed Loose Pulleys have ball bearings. Wear on the Rim Band, on the Main Shaft, and on pulleys and studs is reduced; horsepower is saved; and no oil is thrown on the belt.
6. Crucible Steel Center Cylinder Shaft to which are attached self-aligning center cylinder heads, assuring cylinder alingment.
7. The Quadrant Circle Gear (which carries the winding load) and all other gears which operate at high speed and are subject to severe strain are made of Zee Metal or other special metals to increase their life.
8. Drum Shafts are one continuous length on each side where heavy work is being handled.
9. Threaded Bottom Rolls, instead of keyed rolls, prevent back lash.
10. Chains have high carbon, heat treated links with high tensile strength.
11. A Cam Shaft on the J & B Mule governs the changes in operation. It is exclusive with this machine, positive, easy running, accurate and durable. Motions can not conflict or engage at the wrong time. Shafts frequently operate for 25 years or more without replacements or repairs.
12. Each cam is held in position by a key, as well as by a set screw going into a hole in the shaft, making it impossible to put the cam in the wrong position.

Descriptive catalog on request

Worcester, Massachusetts, U.S.A.

L. F. Dommerich & Company

Executive and General Offices

271 MADISON AVENUE
NEW YORK, N. Y.

Telephone: AShland 4-8650

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For Manufacturers and Merchants

Inquiries as to our services solicited

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ESTABLISHED 1840

Precision ...and more precision...is the aim

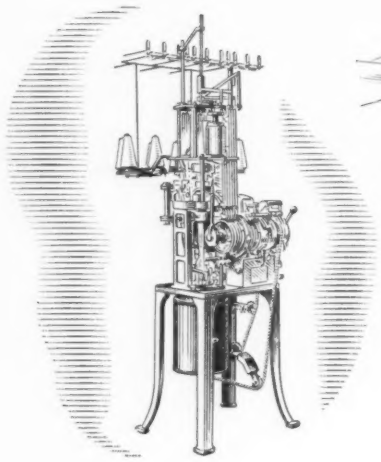
of Torrington engineers and craftsmen in the manufacture of Torrington machine-made needles. But precision alone is not enough to account for the world-wide reputation of the famous *red and green box.* It is a symbol of needle quality because Torrington's staff is continually studying knitting methods and trends...adapting needles to improvements in machines...new developments in yarns... and the ever-changing demands of fashion. Now the knitting industry is going through one of the most difficult periods in its history. New techniques are being applied. New materials are being put to the test. It is a situation that requires fresh and original thought on the part of all knitting mills. Torrington is helping these mills—anticipating and meeting their exacting needle demands. As you plan your production, remember that Torrington represents both precision and progress in needles.

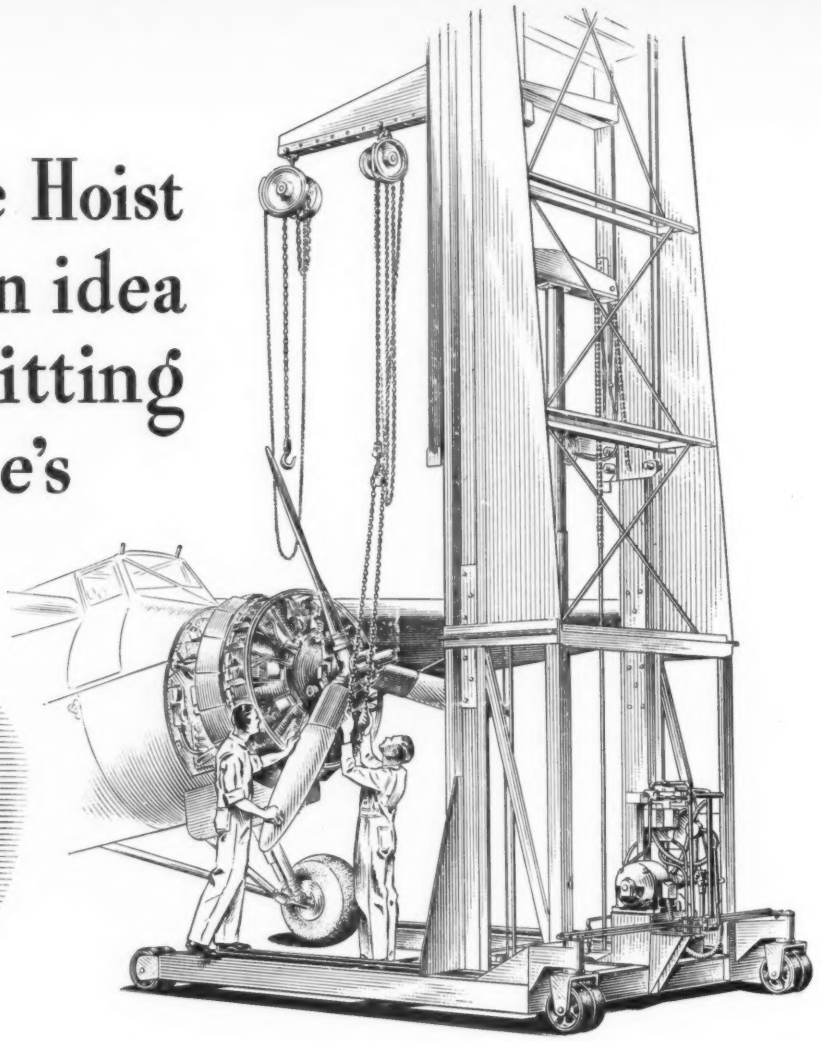
Torrington

Spring Beard Needles

SINKERS · DIVIDERS · SPLIT DIVIDERS

The Engine Hoist "*Lifted*" an idea of the Knitting Machine's





PERHAPS IT SEEMS ODD—an aircraft engine hoist picking up an idea it could use—in a textile mill. Builders of knitting machinery are constantly striving for speed and more speed, greater efficiency of operation. Small wonder the knitting industry was among the first to adopt the Torrington Needle Bearing—its low coefficient of friction insured quicker response, and efficient lubrication permitted operation over long periods without *any* attention.

But the aircraft engine hoist is in no great hurry. How much overloading it could stand, and how dependable it might be—particularly at flight bases in steaming jungle, arid desert and frozen wasteland—concerned hoist designers principally. Yet *they* specified the Needle Bearing—for high load capacity and reliable performance. But in this unique anti-friction bearing's combination of features were several others that came in handy, helped equip our aircraft industry and air forces with engine hoists often surpassing specifications, and in less time, too.

For the Needle Bearing's low coefficient of friction speeded aircraft engine installation and overhauling . . . its simple, effective system of lubrication reduced maintenance time and expense . . . its long service life helped "keep 'em flying," while ready availability, for such essential applications as aircraft engine hoists, was and *is* an important factor in today's staggering plane production totals and our sustained air attacks on enemy bases.

DOES THIS SUGGEST ANYTHING TO YOU in considering your product's design for postwar? There are any number of opportunities for increasing efficiency and reducing costs through the Needle Bearing's combination of features. And you'll have a real sales story! For Tomorrow's customers will be looking for the very advantages the Needle Bearing offers in the products they buy—light weight, compact design, easy operation, efficient lubrication, minimum maintenance. Send for Catalog No. 116 covering sizes, types and ratings, as well as list of typical applications of the Needle Bearing. In working out details, Torrington engineers will gladly help you.

NEEDLE BEARINGS— ALL TYPES—ALL SIZES

NEEDLE BEARINGS TYPE DC are complete, self-contained units consisting of a full complement of rollers and a drawn, hardened outer race. They offer the advantages of small size, low cost, high capacity—and easy installation.

NEEDLE BEARINGS TYPE NCS consist of a full complement of rollers and a relatively heavy hardened outer race. They are furnished with or without inner races. Needle Bearings Type NCS are adaptable to heavier loads than Needle Bearings Type DC.

NEEDLE ROLLERS TYPE LN are produced in a range of types and sizes for assembly on the job into low-cost, high-capacity, anti-friction bearing units. Our engineering department will be glad to advise on the correct size and type for any application.

THE TORRINGTON COMPANY

Established 1866 • Torrington, Conn. • South Bend 21, Ind.

Makers of Needle Bearings and Needle Bearing Rollers

New York · Boston · Philadelphia
Detroit · Cleveland · Seattle
San Francisco · Chicago · Los Angeles
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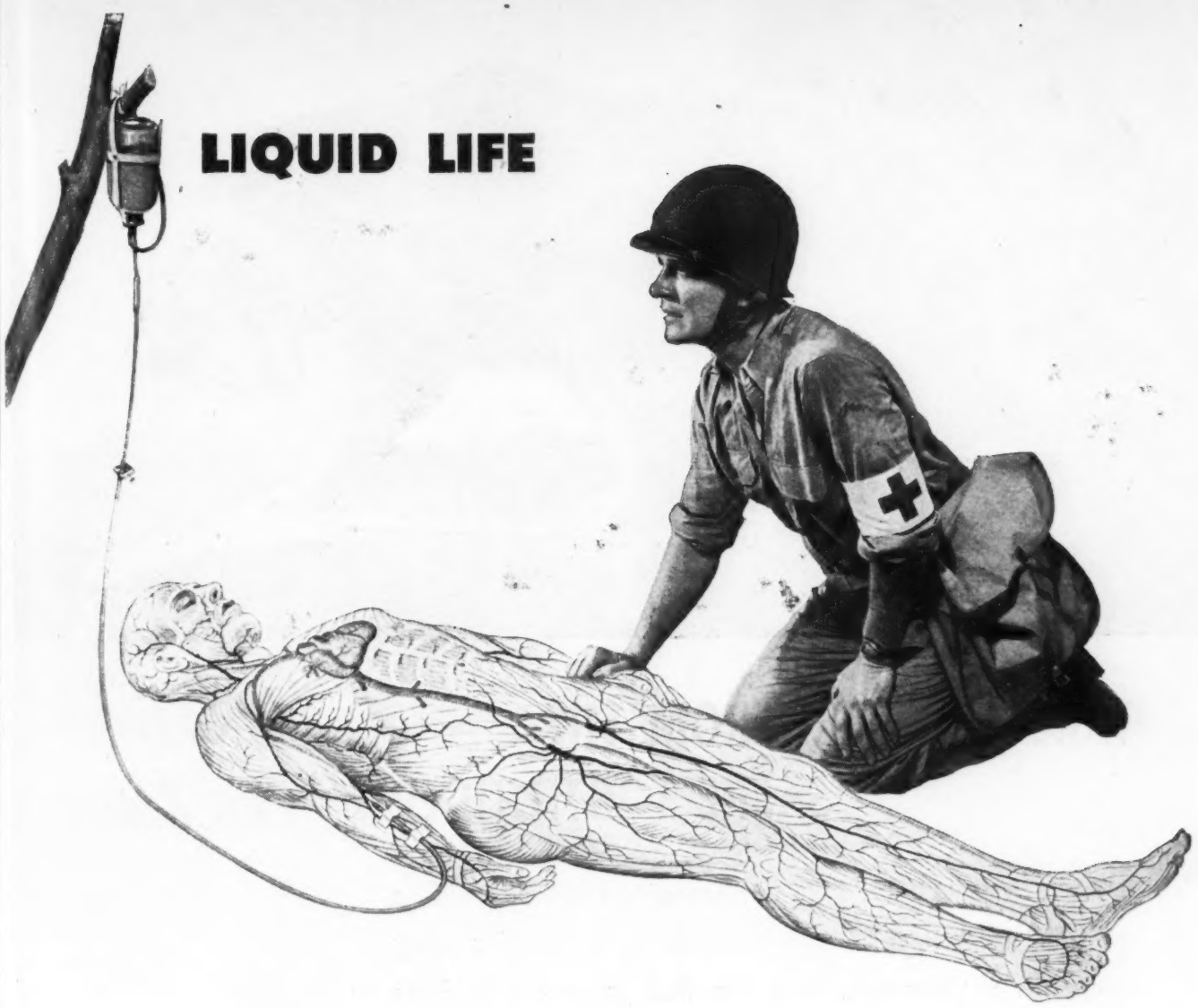
LET'S GO! U.S. KEEP 'EM FLYING!

TORRINGTON NEEDLE BEARINGS

LIQUID LIFE



Not bullets, but *surgical shock*, has killed many a soldier in the wars of the past.

Shock is a breakdown of the blood circulatory system. Blood vessels contract. Circulation slows down, almost stops. If shock is too severe, death results.

Today, when a soldier is wounded, blood *plasma* is injected into his circulatory system. The plasma acts as a sort of pump primer . . . fills up the collapsed veins and arteries . . . starts the system working again. By thus counteracting shock, plasma saves lives and reduces suffering.

The whole blood you give at a Red Cross blood donor station goes through much processing before it gets to the front as plasma. At many points throughout the processing accurately-controlled *refrigeration* must be used.

To provide this refrigeration, General Electric has developed dependable refrigerating equipment that is more efficient, more compact and more flexible—to meet difficult war conditions.

This is only one of the many ways General Electric Refrigeration and Air Conditioning are helping to make a better world.

☆ BUY WAR BONDS ☆

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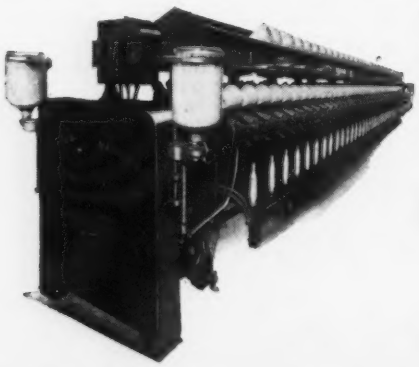
TAKE A LESSON FROM THE SABRE TOOTH TIGER

Because he could not change with changing climatic conditions the sabre tooth tiger became extinct in North America many thousands of years ago. Even the most prosperous business can also become a casualty of changing styles or economic conditions if it does not stay adaptable with flexible equipment, such as the Foster Model 102 Winder. This machine offers a 7-WAY FLEXIBILITY.



FOSTER MACHINE CO.

WESTFIELD, MASS.

Southern Office
JOHNSTON BLDG., CHARLOTTE, N. C.

7 Flexible Features

1. It will wind any kind and any count of staple yarn from fine combed cotton or rayon for tropical fabrics to heavy wool yarns for arctic cloths.
2. It will wind a straight base cone for warping or a convex base cone for knitting with a simple adjustment.
3. It will produce 9 different angles of wind from 9° to 18°. Important if you radically change your count or type of yarn.
4. It will wind package dyed yarn, even if damp. No jumping out of guides.
5. It will wind emulsion treated yarn. In fact, it is frequently equipped with an emulsion attachment.
6. Changeovers from cones to tubes, or vice versa, are comparatively inexpensive.
7. One side can wind cones and the other tubes, if desired.

For today or tomorrow, Foster Model 102 Flexibility is an asset that you need. It also gives you TWICE THE PRODUCTION WITH ONE-THIRD LESS COST as compared with older Models.

FOSTER MODEL 102

For Winding Cotton · Wool · Worsted · Merino · Mercerized · Spun Silk & Spun Rayon Yarn

STALWART, WAR-TIME POWER

American-made motors and generators have met the two and three shift requirements of war industry, with an astounding record of trouble-free performance.

A sizeable proportion of these bear the Crocker-Wheeler name . . . quite a few of them are *older* than the operators of the machines they serve. For Crocker-Wheeler motors and generators, for over 50 years, have been carefully and durably built.

CROCKER WHEELER ELECTRIC MANUFACTURING CO.
Ampere, N. J. • Division of *JOSHUA HENDY IRON WORKS*

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Sure—you'd give him the shirt off your back

. . . but carders can help more by maintaining peak efficiency in the card room

Remember—as you press for production, it's your card clothing that takes the rap. So, the quality of your card clothing directly affects the efficiency of your operation.

TUFFER—made by our exclusive patented Tufferizing Process, is your guarantee of wires that are cut even in length and free from burrs; wires with accurately formed square crowns; wires spaced evenly and parallel set in the famous Tuffer foundation.

This adds up to Card Clothing quality—the kind that stays on the job longer—the kind that helps you maintain peak efficiency.

When you Replace
Replace with→ TUFFER CARD CLOTHING

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WORCESTER, MASS.

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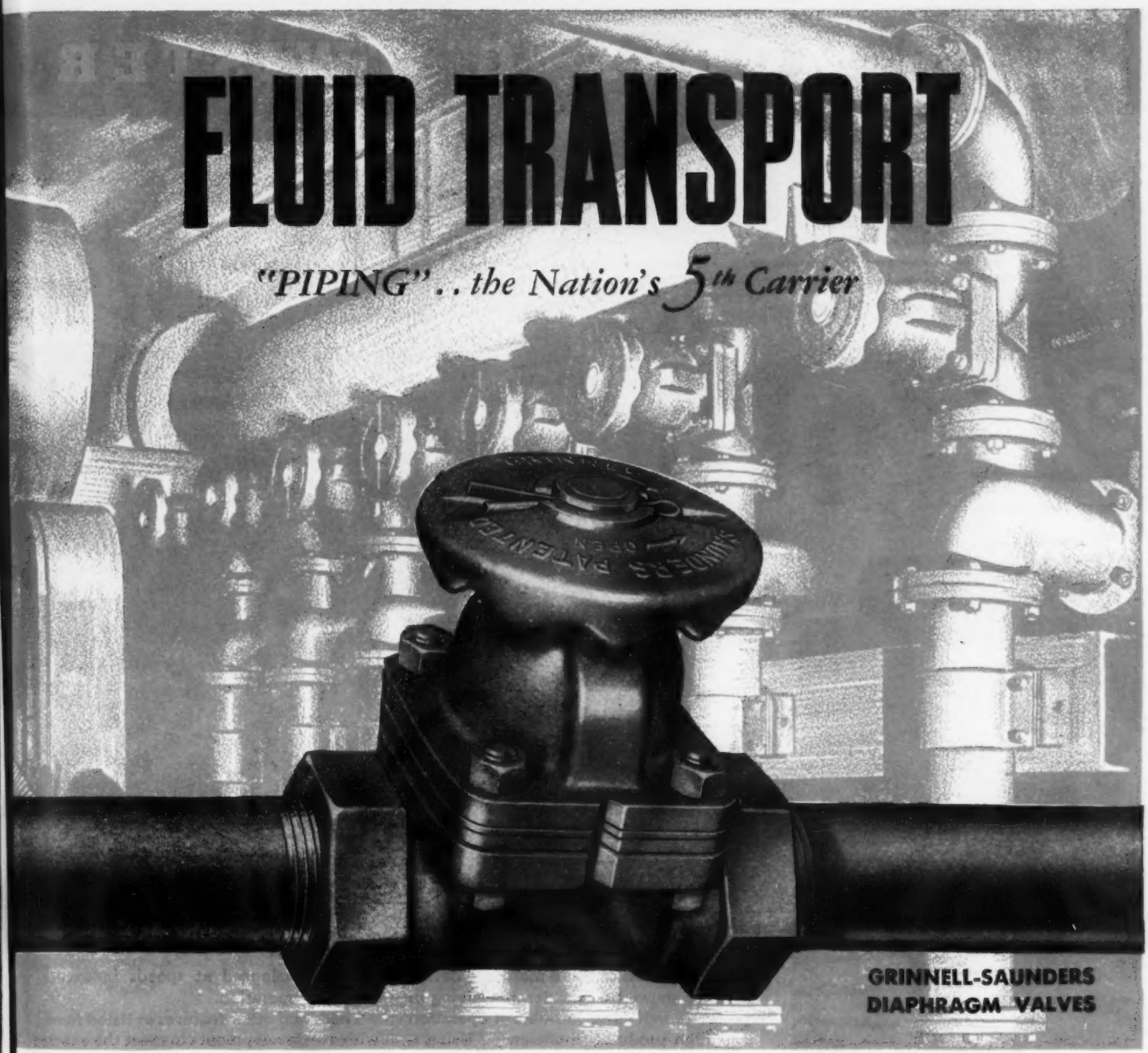
PRODUCTS

Card Clothing for Woolen, Worsted, Cotton, Asbestos and Silk Cards • Napper Clothing, Brush Clothing, Strickles, Emery Fillets, Top Flats Recovered and extra sets loaned at all plants. Lickerins and Garnet Cylinders from 4 to 30 inches and Metallic Card Breasts Rewired at Southern Plant • Midgley Patented, and Howard's Special Hand Stripping Cards • Inserted Eye and Regular Wire Heddles

FLUID TRANSPORT

"PIPING" . . the Nation's 5th Carrier



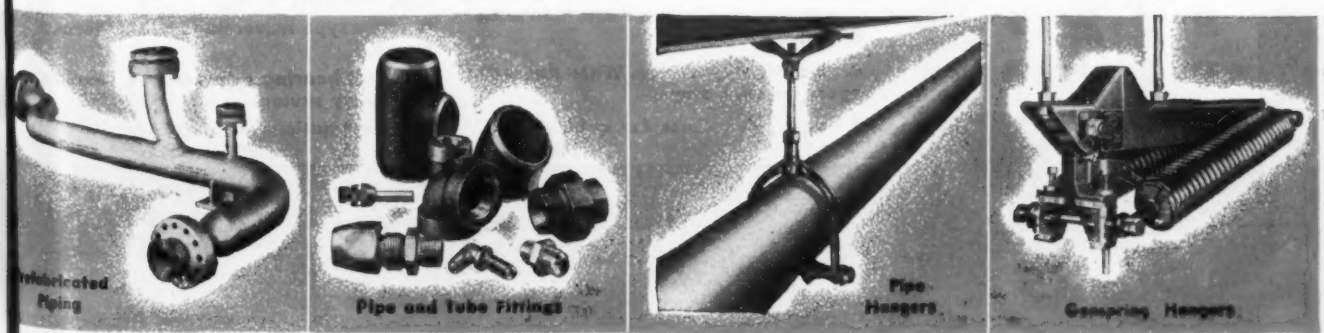
"HOW LONG WILL IT LAST?" is Question No. 1 among specifiers of piping materials for today's process industries. The chemicals to be transported are frequently highly corrosive, so the pipe, valves and fittings selected must be able to withstand their destructive action.

Typical of Grinnell products for this type of service is the Saunders Diaphragm Valve. Its design, permitting a variety of diaphragm materials and body linings to handle each chemical, makes it a long-life valve for process piping. As leading piping engineers and fabricators, Grinnell is furnishing this and other component parts which provide FLUID TRANSPORT in plants producing heavy chemicals, synthetic rubber, food, drugs and the entire range of petroleum products.

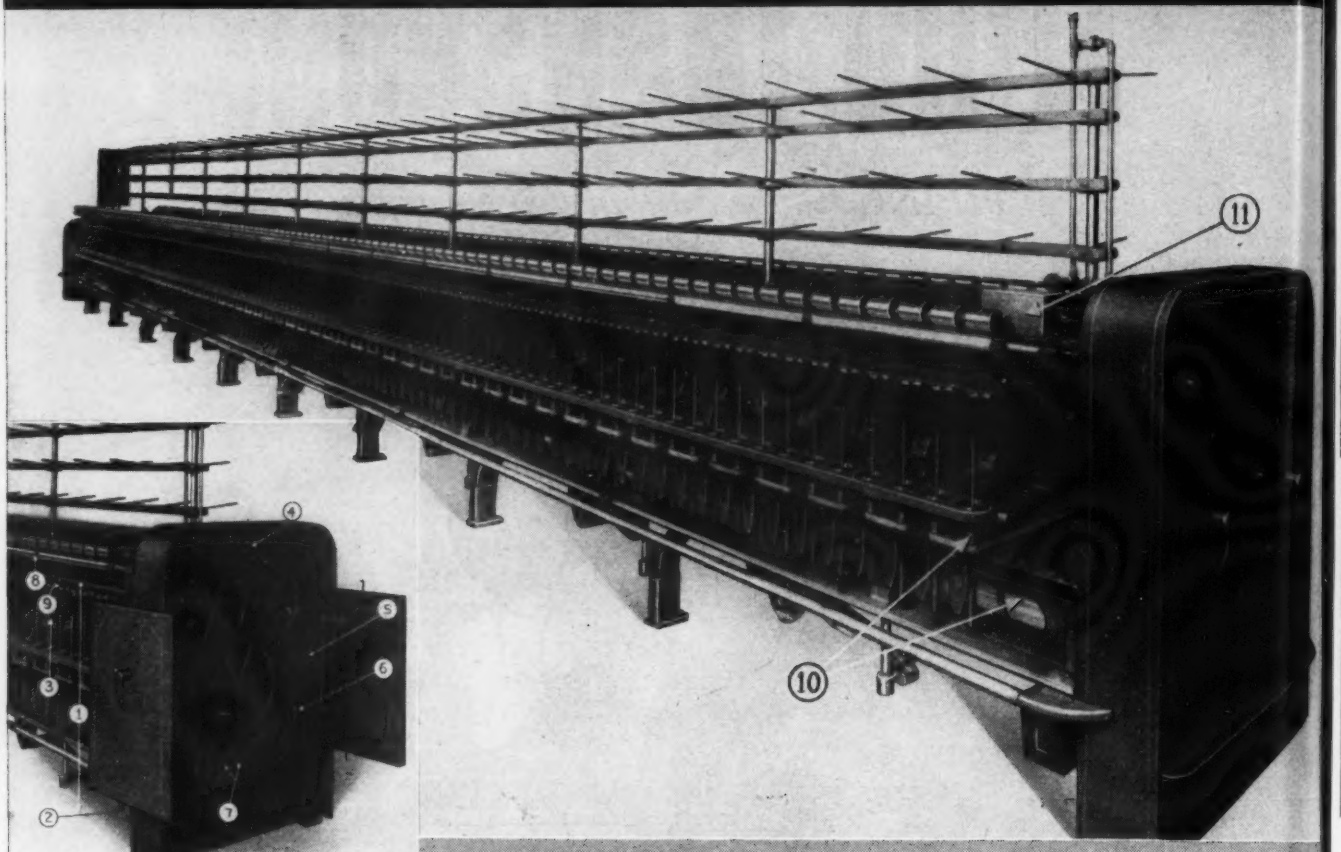
For engineering assistance or piping materials for any type of FLUID TRANSPORT, call Grinnell Company, Inc., Executive Offices, Providence, R. I. Plants and offices throughout United States and Canada.

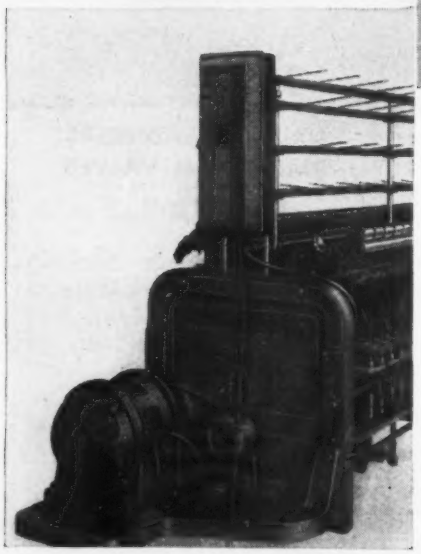
GRINNELL

WHENEVER *Piping* IS INVOLVED



H & B MODEL "G" TWISTER





IMPORTANT POWER SAVINGS
ONE OF 11 MAJOR FEATURES

An installation of these machines before the war showed a considerable saving in power as well as smoothness of operation and high productive efficiency. Using a specially designed framing of rigid construction permits of the highest operating speeds without vibration and undue wear of all moving parts. The Head End is of the box type and easily accessible for all gearing changes. Cylinders are carried on anti-friction bearings and carefully balanced at speeds in excess of actual operation.

Those and other features as listed herewith are developments to meet the exacting demands of present day requirements.

Even if you can not obtain the proper preference rating to install this machine now, we suggest that you investigate its adaptability to your requirements so that you can include it in your modernization program when the proper time comes.

OTHER FEATURES

1. **Built extra low (37" roller beam) for convenience of operation.**
2. **Model B builder. Builder chain increased in size and hardened to assure long life.**
3. **Reversible tension device, allowing spindles and cylinder to rotate in either direction.**
4. **Electric stop motion. When doors are open, machine stops.**
5. **Ring rail release for quick doffing.**
6. **Ball bearing thrust washer for builder drive, which eliminates dwelling at end of traverse.**
7. **Helical cut cylinder and jack gears eliminate noise and assure longer life.**
8. **Moraine steps for bottom roll bearings eliminate oiling.**
9. **New type traversing metallic thread board.**
10. **Ball bearing cylinder and spindles for power saving.**
11. **Automatic water feed control.**

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TEXTILE MILL MACHINERY

H & B AMERICAN MACHINE COMPANY

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★ Have you ever watched a bomber fold its giant landing wheels into its wings?

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As a result of PESCO's more than ten years' specialization in making aviation pumps and related accessories, you will be able to equip your plant or product with a radically improved pumping system. For instance, you can have a compact, precision pump that delivers pressures up to 3000 pounds per square inch. This pump, weighing less than 4 pounds, forms the heart of a PESCO pressurized power system with endless uses in industry for transmitting or controlling power.

In addition to hydraulic pumps, PESCO builds pneumatic, vacuum and fuel pumps of equally high efficiencies, meeting practically all needs for pressurized power or controlled liquid flow.

The performance of PESCO equipment in your plant or product . . . its greater efficiency, dependability, and longer years of service . . . is assured by the fact that it has been engineered to operate under flying conditions which are far more extreme and demanding than any encountered down on earth. Won't you let us tell you more about PESCO Pumps and PESCO Engineering Service?

SEND FOR THIS BOOK "Pressurized Power and Controlled Flow by PESCO". This book pictorially tells the story of PESCO equipment, manufacturing facilities and engineering service. A copy will be mailed promptly upon request.

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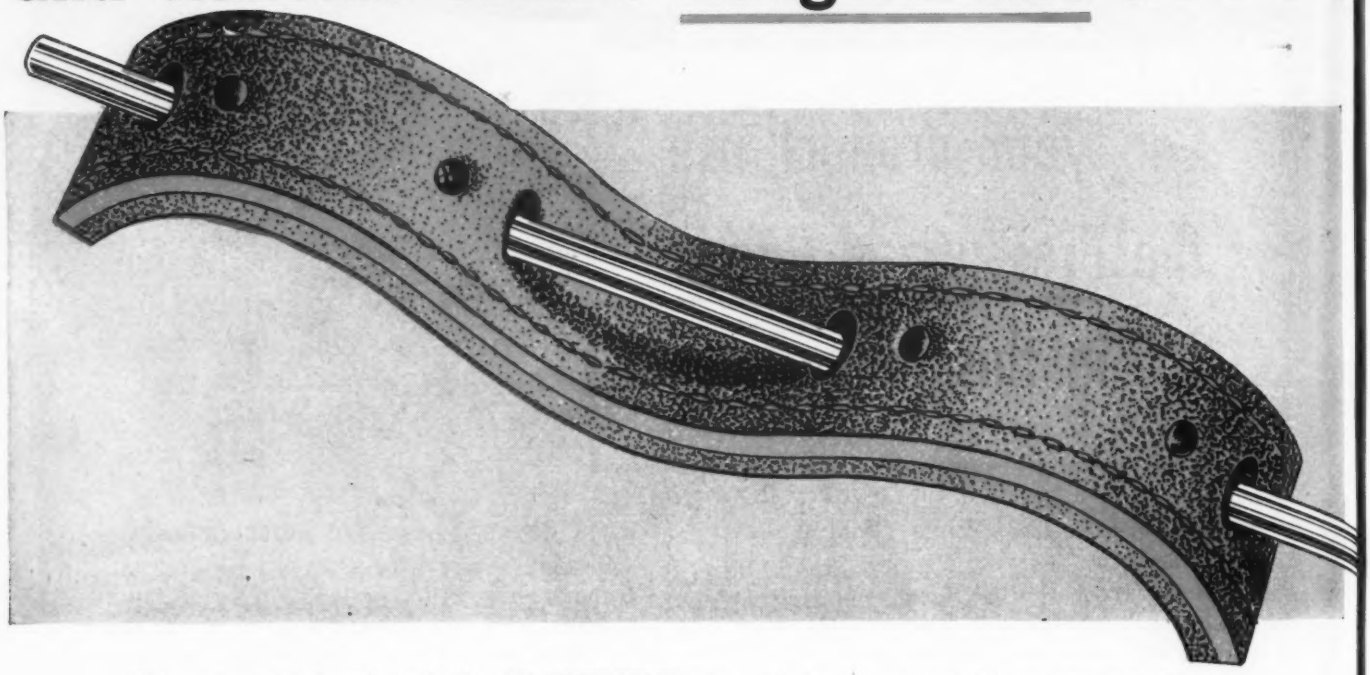
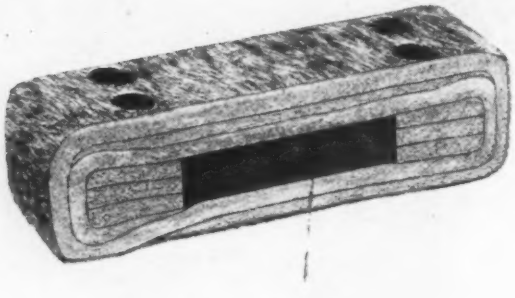
PERFORMANCE POINTS TO Pesco FIRST

ORANGE *Means*

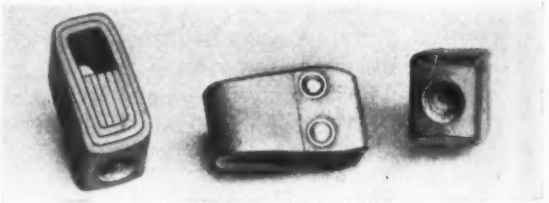
and Hairitan means Longest Life . . . . .



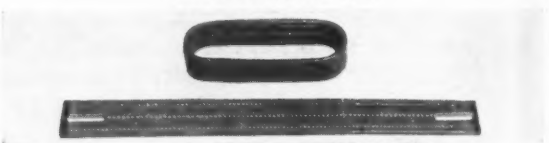
Every one of the products in the **ORANGE LINE** was made from start to finish under one roof . . . under one uniform control . . . for one specific type of service.



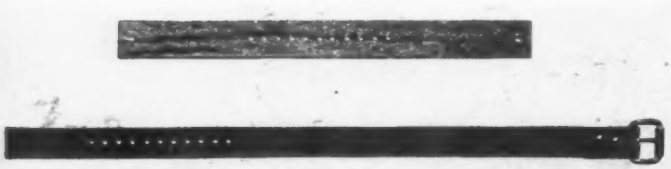
BLOCK PICKER



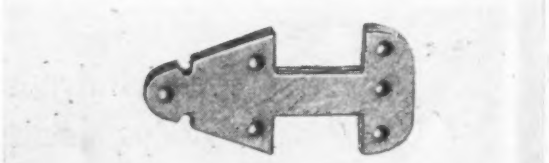
PICKMASTER PICKER



TWO-FOLD CHECK STRAP — STRAIGHT AND ENDLESS



JACK STRAP AND FLAT HARNESS STRAP



LUG HOLD-UP STRAP

HAIRITAN

lowest total cost of any Loom Leathers

If you have been accustomed to favor "European-type" hair-on tannages for loom leathers, here is a domestic tannage that is equal to the best of them in low stretch, tensile strength, resiliency, long life.

The reason Graton & Knight was able to introduce — in Hairitan — a superior tannage for loom services, lies in its control over *all* manufacturing processes. In the world's largest plant manufacturing industrial leather products, hides are carefully selected with certain ultimate requirements in mind. Then, all phases of each product's development are controlled to bring out the desired characteristics.

Check straps, for example, made from Hairitan, have extremely little permanent stretch . . . average 6500 lbs. tensile strength . . . yet weigh less, giving more to the pound.

Hairitan leather intended for other items in the line — pickers, jack straps, flat harness straps, spindle straps, round harness and dobby straps, etc. — is finished specifically for the service requirements they must meet.

All Hairitan leathers — hair-on and hair-off — are colored orange. You'll find that the leathers with *the orange color** will last longer . . . cost you less in the long run.

* *The ORANGE LINE*

ONE QUALITY CONTROL FROM HIDE TO LOOM

GRATON & KNIGHT COMPANY

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Supplied by the leading distributors to the Textile Industry. . . . Look under "Graton & Knight" in "Belting" section of Classified Telephone Directory or THOMAS' REGISTER. See complete catalog in TEXTILE WORLD YEAR BOOK.

*** * * and every one represents a man or woman in the country's Service, at home or overseas. Wherever they are, whether in the Army, Navy or Marines, they need vast quantities of clothing and equipment made of cotton yarn alone or combined with other materials.**

That they may have what they need means curtailed supplies to the civilian market . . . the diversion of much of our normal output. We appreciate your patience and cooperation and assure you that what is available is being distributed as equitably as possible.

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ABERFOYLE MANUFACTURING COMPANY
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Representatives in principal textile centers of the world

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ESTABLISHED 1883

Aberfoyle YARNS

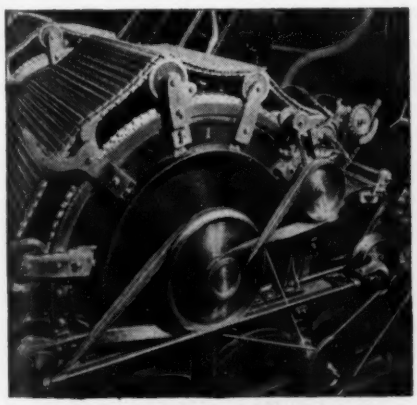
AMERICA'S OLDEST MERCERIZERS OF FINE COTTON

A Butcher Can't Perform an Operation
Sure . . . a butcher can do a swell job on a leg of lamb or a chicken . . . but, you'd certainly want a skilled surgeon to perform your operation. It takes a specialist to do the job right!

GILMER SPECIALIZES IN BELTS

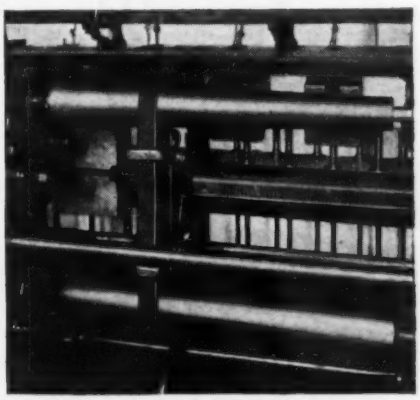
Gilmer has a complete line of belts for the Textile Industry, engineered by specialists . . . the right belt for every power transmission job. And the Gilmer Engineering Staff specializes in power transmission problems. They are available for consultation without obligation, at any time. They can show you how you can increase the efficiency of most of the drives in your plant by using dependable, tight-gripping, slip-free Gilmers.

SOME SPECIAL GILMER BELTS



GILMER KABLE KORD LICKERIN BELTS: Increase production and outlast any belt on the market.

GILMER V-BELTS: Deliver power from motor to spinning frames with maximum efficiency.



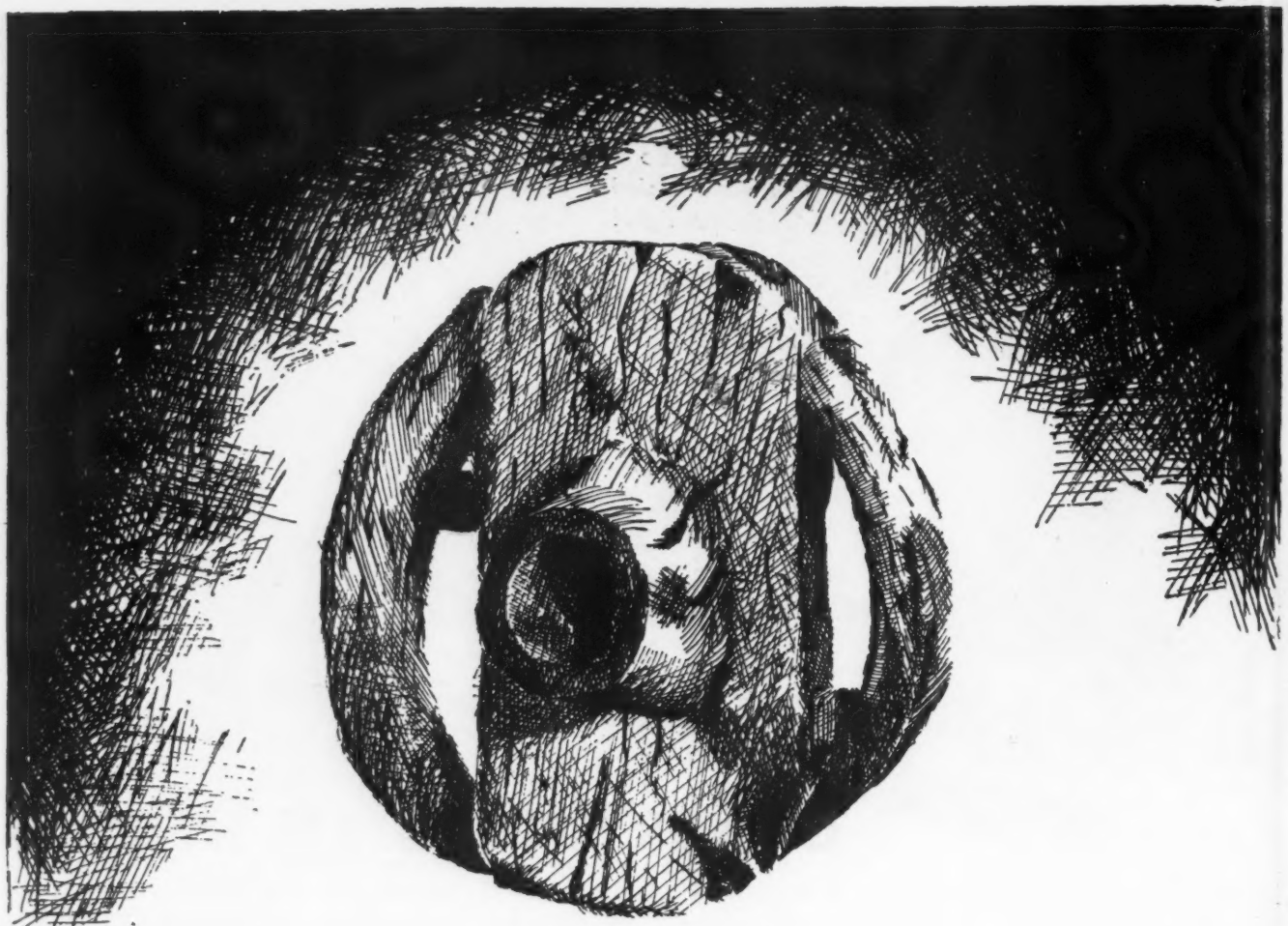
GILMER CONE-DRIVE BELTS: Longer life in the toughest service and shift easily because of sturdy internal construction.

Gilmer BELTS

In addition, Gilmer has a complete line of Endless Round Belts for Carding Machines, Endless Cord Spinner Belts for Silk Throwing, and many others, all completely described in the handbook "Gilmer Belts for the Textile Industry". This handbook simplifies the details for specifying Belts for the great majority of drives. Write for your FREE copy today. It's yours for the asking.

L. H. GILMER COMPANY, Tacony, Philadelphia 35, Pa.

THE OLDEST FIRM OF RUBBER FABRIC BELT SPECIALISTS



Quite an Invention, *too!*

The fellow who invented the wheel did quite a job. Just imagine a world without one. But, it's in the *application* of the wheel to all manner of vehicles and machinery, rather than in the wheel itself, that progress has really been made.

In the same way, the principle of continuity has long been known to the textile industry, from the very earliest days. It is the application of the principle that resulted in the power loom, the spinning jenny, the carding machine, and so on. The technicians of Industrial knew continuous operation was the answer to superior rayon yarn—but how to apply it was the problem. That they solved it, is borne out daily as miles of uniform, virtually knot-free yarn stream from the Continuous Process machine, bound for mills that know its value in increased mill efficiency and level dyeing qualities.

It is the ingenuity of our technicians in developing better methods, applying old principles in new ways, that have made Industrial the progressive company it is.

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RAYON CORPORATION
MAKERS OF
"CONTINUOUS PROCESS" RAYON YARN
AND "Spun-lo" KNIT UNDERWEAR CLOTH

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The One Constant Ingredient

Every Worsted Cot made by Dayton Rubber contains one ingredient that never varies. Wartime restrictions can never affect it. It is mixed into every compound of synthetic rubber and woven into every inch of fabric destined for Dayco Worsted Cots.

This constant ingredient is the sum total of Dayton Rubber's 37 years of continuous development, processing and application of rubbers and fabrics of every type. It is the residue of thousands of man-hours of patient research, practical testing and controlled manufacturing ability.

This constant ingredient is the technical knowledge and experience you would naturally expect to find built into every Worsted Cot by Dayton, the originators and pioneers of Synthetic Rubber Products since 1934.

So whether the Worsted Cots you use are made of today's synthetics or tomorrow's "X" materials need not concern you — so long as they bear the name which stands for Technical Excellence over the years.

THE DAYTON RUBBER MFG. CO.
DAYTON 1, OHIO • WAYNESVILLE, N. C.
Main Sales Office: Woodside Bldg., Greenville, S. C.

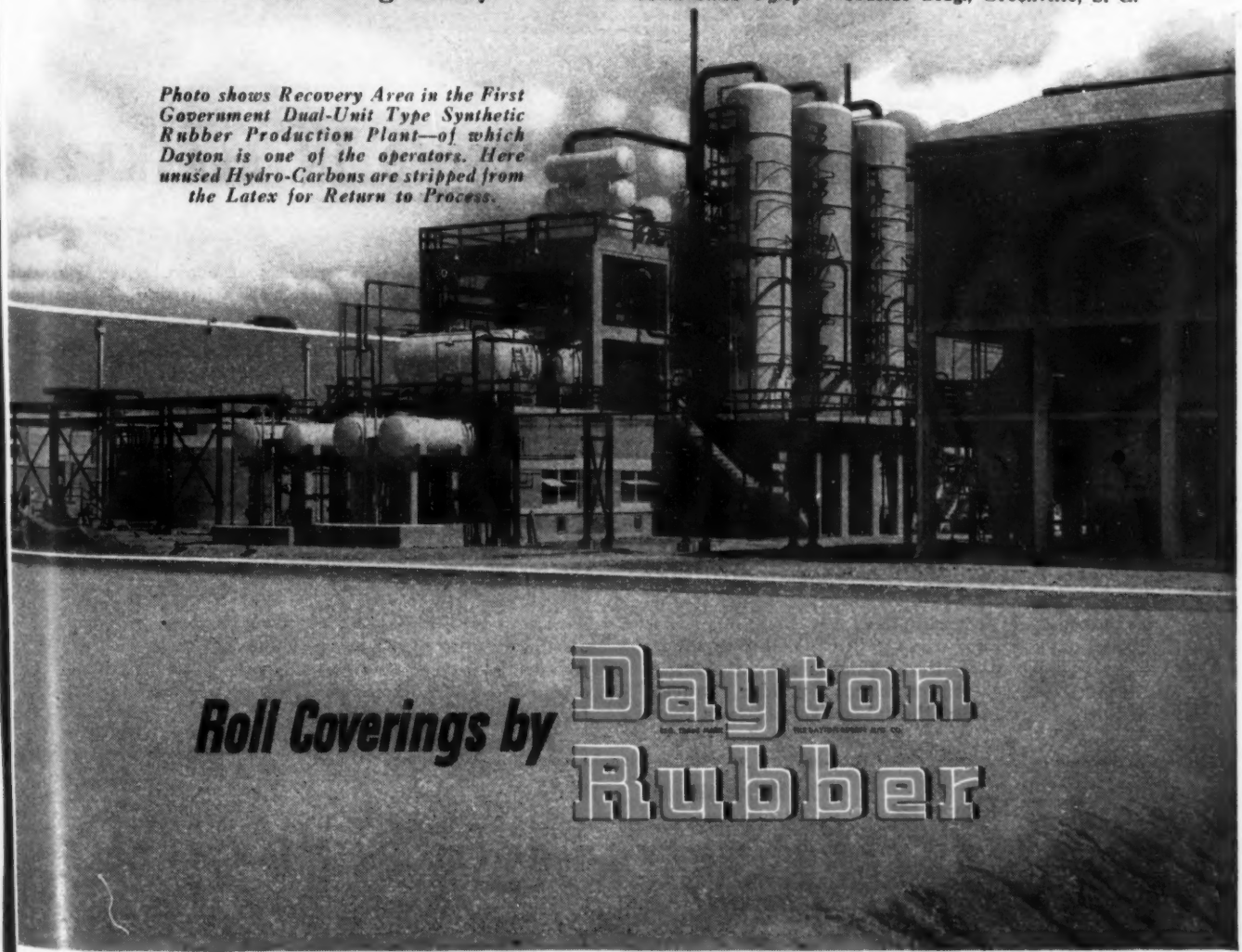


Photo shows Recovery Area in the First Government Dual-Unit Type Synthetic Rubber Production Plant—of which Dayton is one of the operators. Here unused Hydro-Carbons are stripped from the Latex for Return to Process.

Roll Coverings by Dayton Rubber

KEEP BACKING THE ATTACK—BUY MORE WAR BONDS

Pioneering WITH Pigments
- one of a series of developments illustrating the advantages of Aridye* pigmented colors in new and significant applications

What! MOSQUITO NETTING IN ALASKA?

At either end of the tents used by U. S. soldiers in Alaska is a round ventilation sleeve eight inches in diameter and extending horizontally ten inches from the top of the triangle. To keep out the mosquitoes and other insects which, in Alaska, swarm in large numbers during both warm and cold weather, the outer ends of these ventilators, as well as the circular entrances, are equipped with mosquito netting of the same type that, for tropical climates, is used in jungle hammocks and mosquito bars.

To date, more than 50 million yards of military mosquito netting have been dyed and finished in a time-saving continuous operation, using Aridye* pigment colors. Since extreme light fastness is essential, pigments were chosen that could stand 300 hours in the fadeometer. Because of the need for shrinkage control, the binder selected was Ceglin†, a cellulose finish. Careful dispersion of the pigments in the vehicle and proper application on a good padder assured even, uniform dyeing of the fabric. Curing was then effected by a continuous process of coagulating the Ceglin in a souring bath, neutralization and drying of the fabric.

The resultant light fastness, improved finish and shrinkage controls are now available for the pigment-dyeing and finishing of many kinds of civilian fabrics. This new development means that curtains and knit goods can be dyed faster to light than heretofore, shrinkage can be controlled and the goods finished all in one continuous operation!

Successful and satisfactory results depend, as in all pigment-dyeing, upon three factors: (1) technically correct pigment colors (2) must be properly applied and (3) adequately cured.

An illustrated, more detailed folder has been prepared on the subject of pigment-dyeing of knitted cotton fabrics and marquisettes, and will be sent without obligation to all finishing plants requesting it. Send for your copy today!

Aridye Corporation is a sales agent for Ceglin, a product of Sylvania Industrial Corporation.

*Reg. U. S. Pat. Off. Aridye Corporation
†Reg. U. S. Pat. Off. Sylvania Industrial Corp.

Aridye TEXTILE COLORING MATERIALS

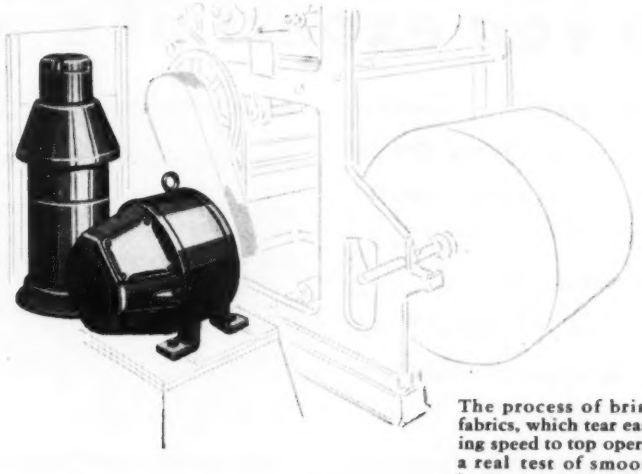
ARIDYE CORPORATION • SUBSIDIARY OF INTERCHEMICAL CORPORATION • FAIR LAWN, N. J. • ROCK HILL, S. C. • PROVIDENCE, R. I.

SMOOTH!

Smooth starts, *smooth* acceleration and deceleration, and *smooth* speed changes—all without clutches or brakes—are important characteristics of electric motor-drive. That they can be made to contribute substantially to improved production rates, quality and lower costs has been shown repeatedly by Reliance engineers.

Through pioneering work in many industries, Reliance men have demonstrated that motor-drive, properly applied, can be *more than power*—that, in itself, it can provide for the performance of a wide variety of operations, all with maximum simplicity, efficiency and *smoothness.*

If you would like to invite a Reliance man to come in and talk things over with your own engineers and production planners, please let us know.



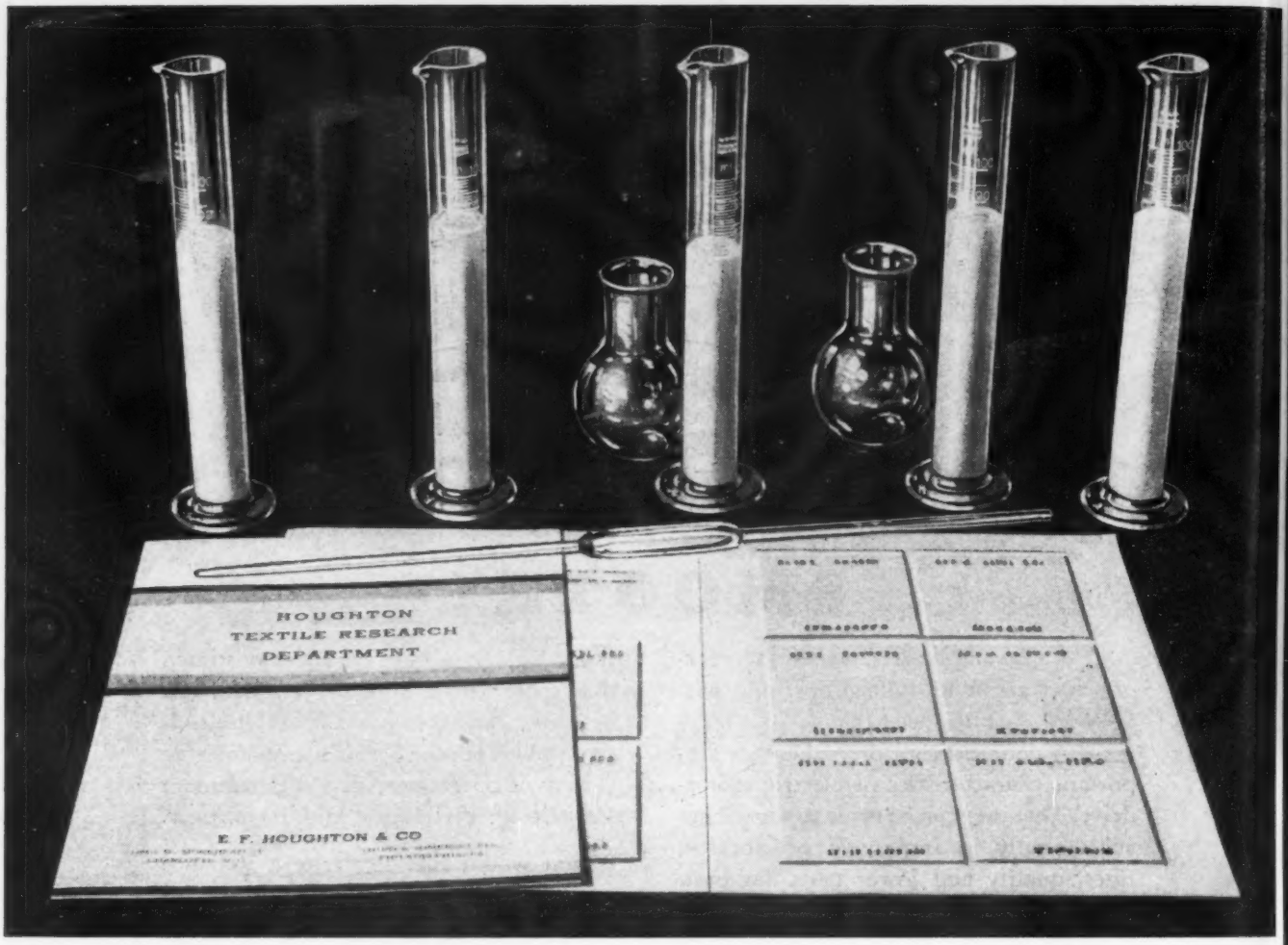
The process of bringing foils and sheer fabrics, which tear easily, from low threading speed to top operating speed furnishes a real test of smooth acceleration. This is met successfully by the Reliance V★S Adjustable-speed Drive for A-c Circuits.

RELIANCE A·C D·C MOTORS

RELIANCE ELECTRIC & ENGINEERING CO.

1088 Ivanhoe Road • Cleveland, Ohio

Birmingham • Boston • Buffalo • Chicago • Cincinnati • Detroit • Greenville (S.C.) • Houston • Los Angeles • Minneapolis • New York • Philadelphia • Pittsburgh • Portland (Ore.) • St. Louis • San Francisco (Calif.) • Syracuse (N. Y.) and other principal cities.



What do you expect of a wool oil?

Do you want easy scourability . . . freedom from rancidity . . . ready solubility? Do the qualities of uniformity, non-oxidation and efficiency interest you? Or, do you want to do the job at the lowest possible cost?

Only you can answer those questions. It will depend, of course, on the type of woolens or worsteds you are manufacturing.

Houghton, long a supplier of high-grade textile oils, has a product for every need, every type of yarn from reworked wools to high-grade woolens and worsteds.

Also, Houghton provides a service to help you evaluate these oils. Pictured above is a swatch test made with various oils, showing Fadeometer results—one of the aids to wise choice of oil which we are rendering woolen mills.

Your return to consumer goods may involve a change of conditioning oils. Please feel free to consult our Textile Research Staff.

E. F. HOUGHTON & CO.

303 WEST LEHIGH AVENUE, PHILADELPHIA

SULFOLS—for worsted fibers
LANOLUBRICS—for high grade woolens
WORSTED SIZE—for uniform cloth
SURFAX W. O.—for wetting out
N-25-C—for detergency
HOUGHTO-SIZE—for cotton and rayon yarns
RAYLUBRICS—for rayon processing needs

TUBIZE CHATILLON CORPORATION

Now the

TUBIZE RAYON CORPORATION

To make things simpler...

ON NOVEMBER 12, 1943 our stockholders voted to change our corporate name from Tubize Chatillon Corporation to Tubize Rayon Corporation.

Practically speaking, it's a good thing. The name is simpler, and identifies us at a glance with the Rayon Industry.

From the sentimental viewpoint, it's not so easy to change a name. Under the old title, during the years in which the consumption of rayon in America grew from 118,800,000 to 650,000,000 pounds per year, Tubize kept steady pace, developing its service and improving its product with each year.

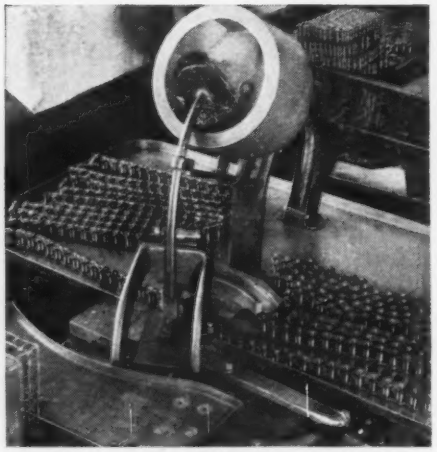
Today, under our new name, Tubize Rayon Corporation, we take our place as one of the important producers of both Acetate and Viscose Rayon Yarns; and of woven and knitted fabrics made of these yarns.

TUBIZE RAYON CORPORATION

MANUFACTURERS OF TUBIZE RAYON YARNS AND FABRICS

EXECUTIVE OFFICES: 2 PARK AVENUE, NEW YORK 16, N. Y.

better Methods that use fewer hands



Automatic cotter pin inserting machine for chain belt manufacture assures greater accuracy and uniformity.

Machine design methods, by taking over tedious and laborious tasks in industry, have helped to create in America a civilization which allows men to live as well as to work. An example of progressive machine design that solved a very difficult problem is this Baldwin-Duckworth cotter pin inserting machine for chain belt manufacture. It makes an automatic operation of a task that previously required much hand labor—and at the same time provides greater accuracy and uniformity in the finished product.

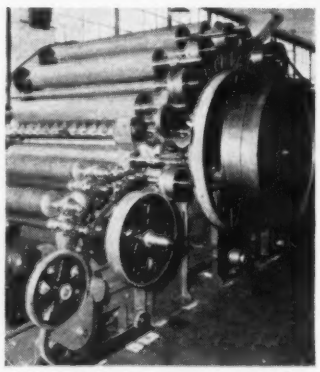
better Drives with Baldwin Roller Chain Belts

This and many other improvements in chain belts are of significance in the solution of drive-problems which face maintenance engineers. Baldwin Roller Chain Belts insure accurate, split-second timing, deliver virtually 100% efficiency, absorb all shocks and give perfect maintenance of speed ratio. In fact, *roller chain belts are the only type of transmission that can absorb shock loading without loss of speed ratios and efficiency.*

Baldwin-Duckworth offers a comprehensive catalog on roller chain belts for the transmission of power and conveying materials. But for specialized applications involving any machine which you may be redesigning, or which needs greater drive or timing efficiency, call in a Baldwin man. He will be glad to work with you.

BALDWIN-DUCKWORTH Division of Chain Belt Company, **346** Plainfield Street, Springfield, Mass.

EXAMPLE



This breast drive woolen card uses Baldwin Roller Chain Belts to assure:

1. Continuous jerk-free smoothness of operation.
2. Quiet, positive slip-free transmission of power.
3. Virtually 100% efficiency.

IT'S BALDWIN-EQUIPPED

better Drives through better Methods

BALDWIN

ROLLER CHAIN BELTS

Electronics Specialists

IN RESEARCH, DESIGN, APPLICATION ...and Service!

AUTOMATIC PROCESS CONTROL

This new development by the research laboratories of General Electronics Industries provides automatic control of chemical processes and also of production machinery, by means of printed charts which may be replaced or interchanged as readily as phonograph records.

● Jacks-of-all-trades have their place . . . but *not* in General Electronics Industries. Everyone in this organization, from top-flight research engineers to service men and their assistants, is an electronics specialist.

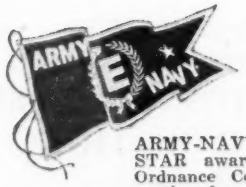
We have no miracle gadgets nor mysterious cure-alls for sale. Our business is the proper application of electronics to solve individual production problems. This begins with diagnosis, *follows through* with research, perhaps special design, and includes expert service before and after completion of the job.

To assist you in your post-war production planning, one of the largest organizations specializing in Electronics offers the skill, experience and unsurpassed facilities that have successfully met the most exacting tests of war.

Write to Engineering Department, General Electronics Industries, 342 West Putnam Avenue, Greenwich, Connecticut.

●

Other products manufactured include: **ELECTRONIC CONTROLS • VACUUM TUBES • HYDRAULIC SERVOS COMMERCIAL RADIO EQUIPMENT • ELECTROMECHANICAL DEVICES • ELECTROSTATIC HEATING UNITS UP TO 250 KW.**



ARMY-NAVY "E" WITH STAR awarded to Auto-Ordnance Corporation for continued excellence in production of "Tommy" Guns.

GENERAL Electronics INDUSTRIES

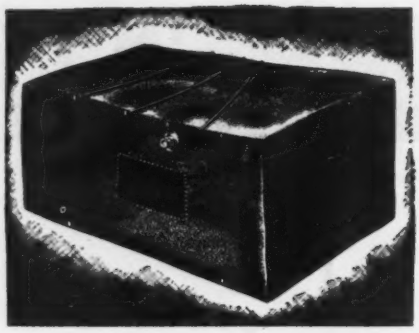
Division of Auto-Ordnance Corporation

GREENWICH • STAMFORD • BRIDGEPORT • NEW MILFORD • NEW YORK

RAYON REPORTS

Published Monthly by American Viscose Corporation, New York, N. Y. DECEMBER, 1943

SELF-SEALING GASOLINE TANKS CALL FOR RAYON



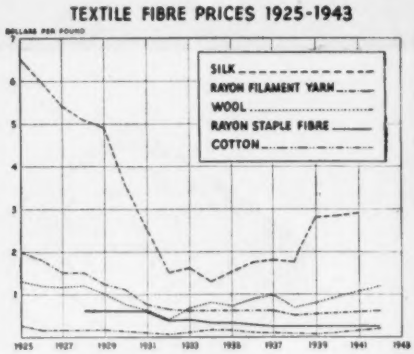
The self-sealing fuel cell, lodged in the wings of combat planes, is helping to save the lives of American airmen. Important to the construction of the self-sealing gasoline container is its outer layer which is made of rayon fabric coated with rubber.

Rayon was chosen because it provides the required strength and protection to the cell as a whole, and because it has the necessary lightness. Rayon fabrics can be made with a strength-weight ratio that is greater than that of many other fabrics. Every pound saved in the construction and installation of permanent plane equipment can be applied to provide heavier armament, a larger supply of ammunition, greater gasoline capacity or greater horsepower.

TREND OF RAYON PRICES

The chart below clearly shows the trend of rayon prices and their stability in recent years.

From slightly above $2.00 per lb. in 1925, the price of 150 denier viscose rayon filament yarn has steadily declined and today stands at 55¢ per lb. The price of



1.5 denier, 1 9/16 inch viscose rayon staple fiber has declined from 60¢ per lb. in 1928 to 24¢ per lb. in 1943.

Of particular interest is the stability of rayon prices since the war started in 1939. This stability has been translated to the cost of living and has been an important factor in retarding inflation in the textile field.

"VINYON"** HELPS PRODUCTION OF VITAL WAR MATERIALS

Acid-resistant filter cloths made of "Vinyon," the vinyl resin yarn manufactured by the American Viscose Corporation, are proving of value in the production of such vital war materials as high-octane gasoline, synthetic rubber, explosives and dyestuffs.

Because of Vinyon's high resistance to acids and alkalies, a number of production economies are possible. Sulphuric, nitric and hydrofluoric acids, aqua regia, caustic soda, potash, and many other equally destructive substances can be successfully filtered on a practically continuous basis through Vinyon fabrics. The result is fewer filter changes, longer and more continuous service and uninterrupted production. Vinyon, then, offers definite advantages to the chemical, pharmaceutical and dyestuffs manufacturing industries, as well as to many types of laboratories.

An especially interesting type of industrial utilization for Vinyon filters is in electrochemical processes, where they serve to keep plating solutions in condition. Anode bags of Vinyon cloth cover the anode and prevent particles from entering the solution.

As a filter, the "Vinyon" cloth serves scores of different industries in scores of different ways. The government is currently the largest single user, but many industrial concerns are being supplied. And their number will probably grow, after the war, as will the uses for Vinyon.

SUGGESTED READING FOR CARPET INDUSTRY

A new informative paper titled *Special Rayon Fibers for Floor Coverings* written by Joseph A. Truitt of the Textile Research Department of Marcus Hook is now available.

This article should be read by all floor covering manufacturers and retailers since it gives the latest information on rayon and rayon-wool blended rugs. The qualities of soil resistance, cleanability, and durability are discussed authoritatively in this paper. To receive your copy, simply address your request to American Viscose Corporation, 350 Fifth Avenue, New York City.

**T. M.—C. & C. C.

MAKE USE OF 4-PLY SERVICE

1 PRODUCT RESEARCH
Helps you get the right yarn.

2 FABRIC DEVELOPMENT
Helps you design new fabrics.

3 TEXTILE RESEARCH
Helps solve production and finishing problems.

4 "CROWN"* TESTED
Helps provide scientific selling facts.

AMERICAN VISCOSE CORPORATION

Producer of
CROWN* *Rayon Yarns and Staple Fibers*

Sales Offices: 350 Fifth Avenue, N. Y. C. 1; Providence, R. I.; Charlotte, N. C.; Philadelphia, Pa.
Plants at: Marcus Hook, Pa.; Roanoke, Va.; Lewistown, Pa.; Nitro, W. Va.; Parkersburg, Va.; Meadville, Pa.; Front Royal, Va.

CROWN TESTED RAYON FABRIC

*Reg. U. S. Pat. Off. Copr. 1943, American Viscose Corp.

In the tight spots it's a STAR

AVAILABLE ON REQUEST . . . Handsome full-color 10"x10" reproduction of this great, dramatic painting by an actual eye-witness—Lt. Commander Anton Otto Fischer, the internationally famous marine painter. No advertising matter.

Up came the German sub—the sixth to face the U. S. Coast Guard Cutter *Campbell,* in 18 hours. Seconds later, the U-Boat was reeling under the cutter's withering fire against her steel decks and conning tower, recoiling from the impact of the cutter's starboard side against her pressure hull, floundering helplessly as shell after shell from the *Campbell's* after-guns crashed into her plates. Minutes later, down went the sub for the full count.

Now it was seen that the sub's port hydroplane had ripped through the *Campbell's* hull. Soon the engine room was flooding, the main electrical switchboard swamped. All power failed. The *Campbell* was a drifting, helpless hulk in the night. Could STAR help the *Campbell* through this "tight spot?" Star could — and did. When the main lighting and power systems failed, a Star Auxiliary Generator—installed for just such emergencies—provided light, refrigeration and power for cooking, radio, and other purposes until the *Campbell* reached port.

Thus, in more ways than one, Star proves its worth in the "tight spots." And in the actual "tight spots" of your product, where stamina must be combined with specific space adaptation, you'll find Star's unique welding process ready to fill the bill—without special patterns or special castings.

★ STAR ELECTRIC MOTOR CO., Bloomfield, New Jersey ★

POWER **PACKAGED** AS YOU NEED IT

ARMY E NAVY

STAR MOTORS

Now

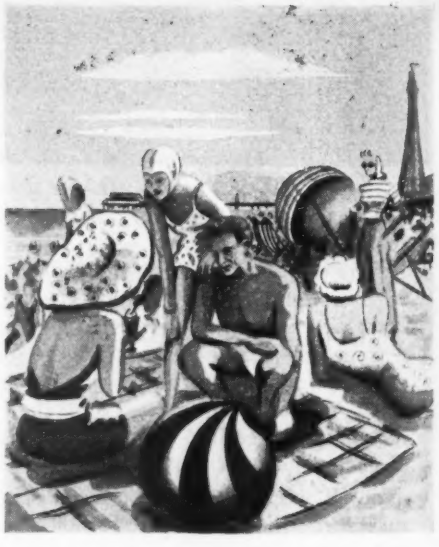
ALL OUT TO WIN!

Crown Copyright Reserved

Then —

Your machinery, will have endured the continuous strain of war production. Naturally, you will desire that it shall be made adequate to fulfil the increased demands for clothing of all kinds.

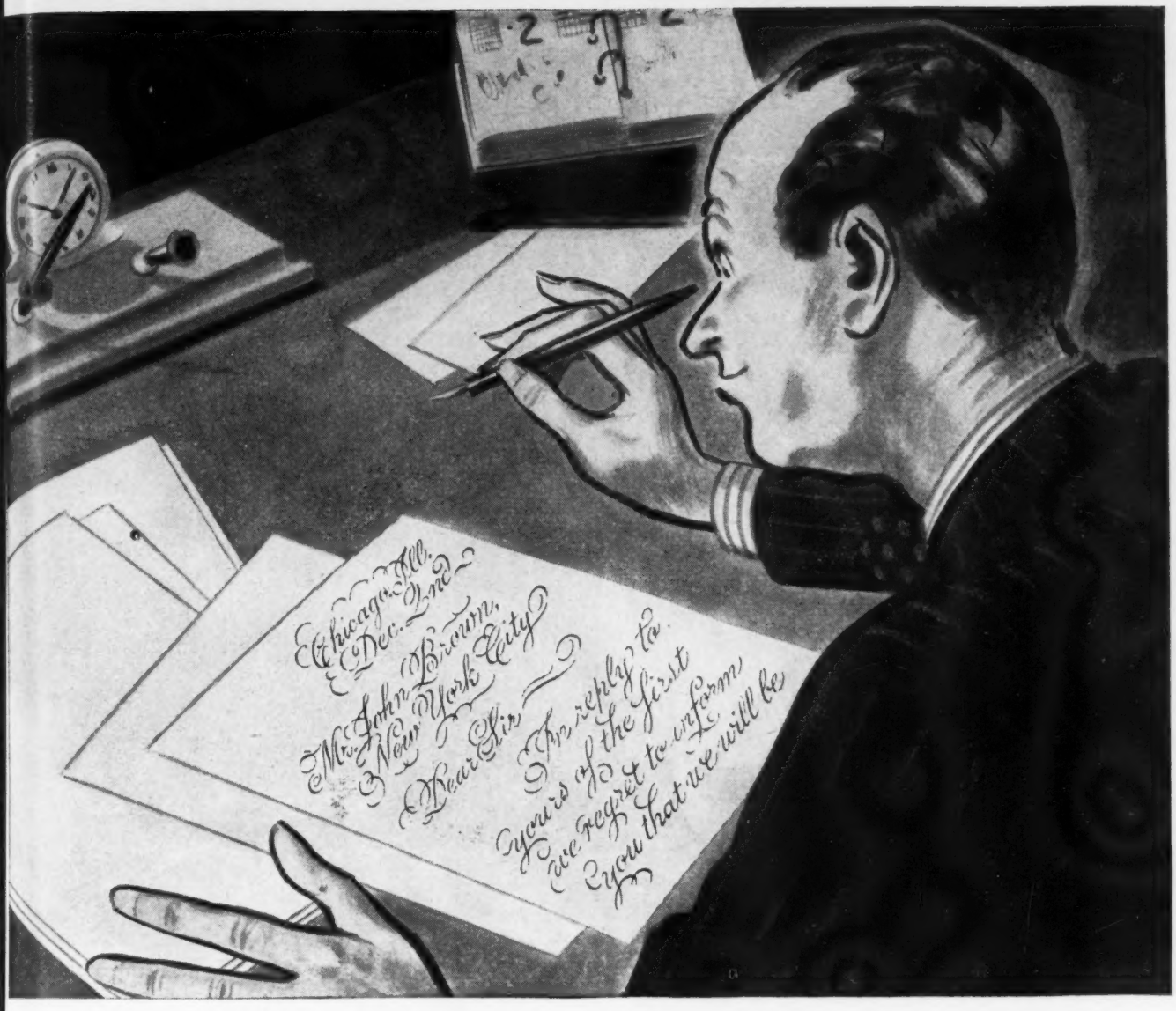
As makers of machinery for the production of Worsted Yarns on both the English and Continental Systems, we shall be ready to put your plant in perfect order and so ensure maximum quality and quantity in post-war output.



PRINCE-SMITH & STELLS LTD.

WORSTED MACHINERY MANUFACTURERS

KEIGHLEY (Yorkshire) **ENGLAND**



NICE WORK—*but try to get it!*

"He writes a beautiful hand" was high praise for an office employee of the '90s.

But there's no big market today for those elegant flourishes, those delicately shaded lines. They take too long to do.

Modern business demands speed in all its operations. Often, such speed can only be achieved through swift, *repetitive* action—processes that are performed over and over again, quickly and accurately. That's especially true of business records—orders, invoices, shipping forms and the like.

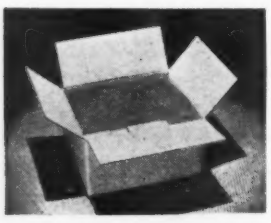
For many years now, Uarco has been helping to speed plant and office routine with better record forms—both autographic register and typewritten. Designed for every department of business and industry, these record forms help to simplify the most complicated operations . . . achieving savings of time and effort which often appear incredible.

Whatever your particular record problem, chances are that Uarco has a solution, or can devise one. It costs nothing to consult with a Uarco representative.

UNITED AUTOGRAPHIC REGISTER COMPANY
Chicago, Cleveland, Oakland • *Offices in All Principal Cities*

Why paper-board is scarce

It's in the "woods" where we find the significant reason for present paper-board shortages. Many lumberjacks have left their wood-cutting for the armed services and for jobs in defense plants. The manpower shortage and unfavorable weather conditions have also affected the supply of straw used in corrugating materials as well as the collection of waste paper, both so important to the industry. Add to these difficulties the tremendous increase of war-time packaging demands, and the reasons for present shortages are evident.



Any relief in sight? The War Production Board has placed restrictions on the manufacture of some types of paper, and paper products, but unless current demand trends are radically changed; unless raw materials and manpower are visibly increased, paper production for '44 will meet only the most *essential needs.*

The production of The Hinde & Dauch Paper Company, one of the Nation's largest manufacturers of corrugated shipping boxes, is devoted to war needs. As a leader in the industry, H & D is endeavoring to procure sufficient raw materials to continue the manufacture of corrugated boxes for war materials, Lend-Lease supplies, and essential civilian needs.

Sidney Stahlman
PRESIDENT

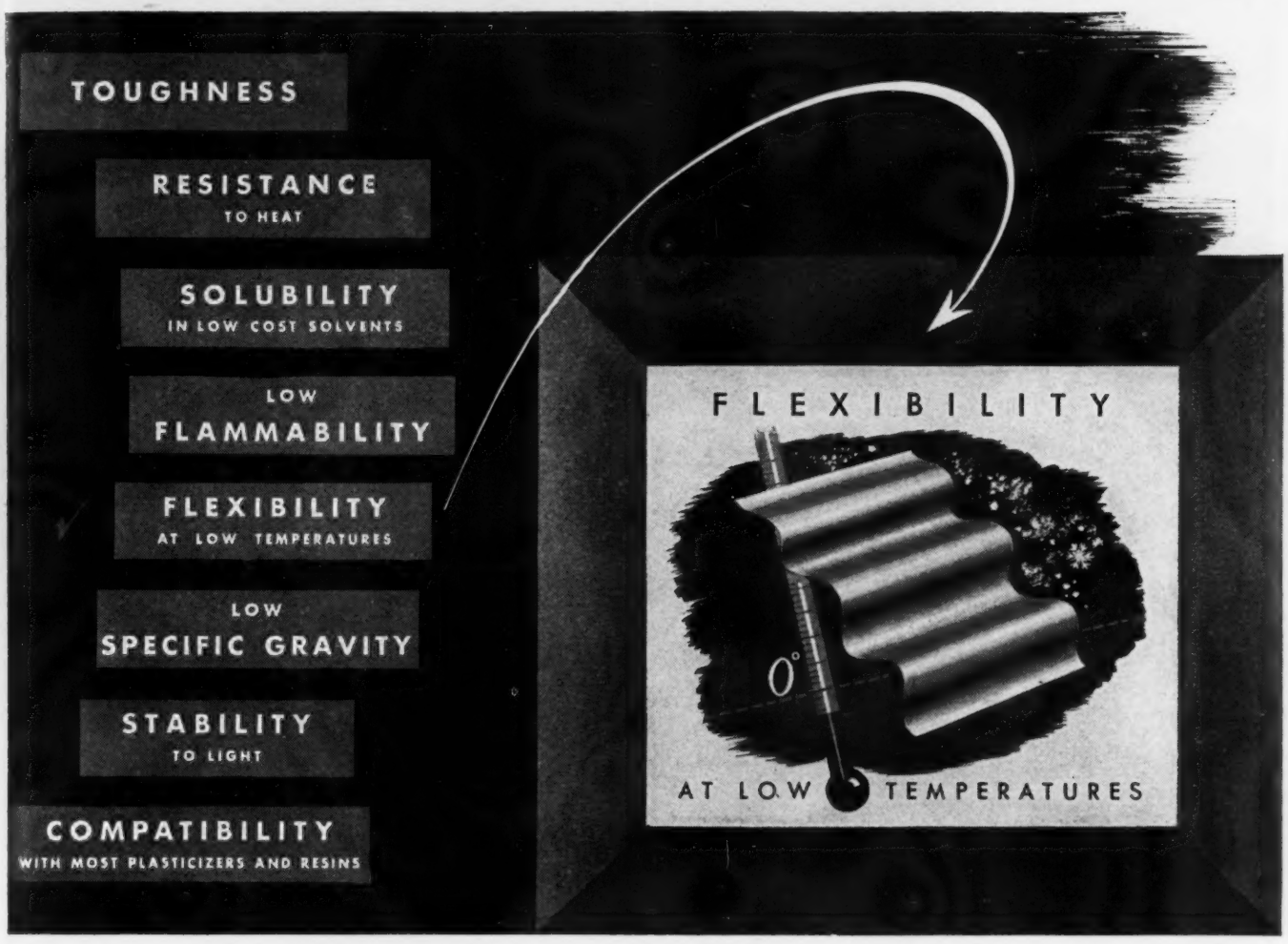
HINDE & DAUCH

AUTHORITY ON PACKAGING WAR MATERIALS

Executive Offices: 4330 Decatur Street, Sandusky, Ohio

FACTORIES in Baltimore • Boston • Buffalo • Chicago • Detroit • Gloucester, N. J. • Hoboken
Kansas City • Lenoir, N. C. • Montreal • Richmond • St. Louis • Sandusky, Ohio • Toronto

Make a mental note of this Ethocel property



Our fighting equipment must withstand the extreme cold of Arctic and stratospheric regions. ETHOCEL, with its remarkable resistance to temperature extremes, is helping to do this job. Even at −60° F., an unmodified film of ETHOCEL can be creased without breaking. In fact, unlike most products, ETHOCEL itself has greater low temperature flexibility than when modified with most plasticizers and resins.

ETHOCEL not only produces lacquers exhibiting high resistance to checking at low temperatures, but has successfully been used to improve such properties in nitrocellulose compositions.

This, and the other important properties listed above, have created such a demand for ETHOCEL in the war program that it is at present extremely difficult to obtain. But you will want to remember these same features when ETHOCEL is again available for use in your product. Make a mental note of ETHOCEL for the future!

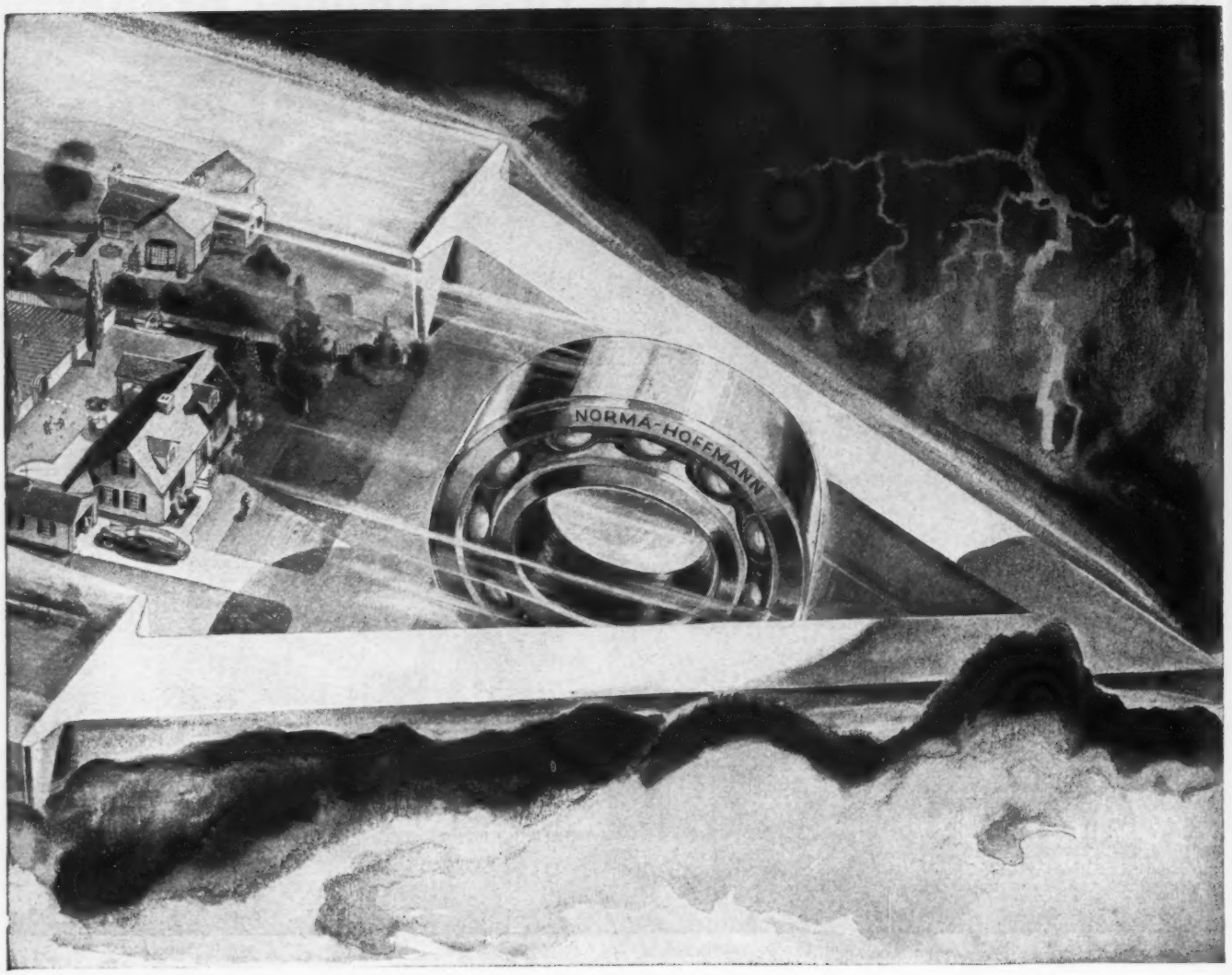
THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN • New York • Cleveland • Chicago • St. Louis • Houston • San Francisco • Los Angeles • Seattle

ETHOCEL

(DOW ETHYLCELLULOSE)

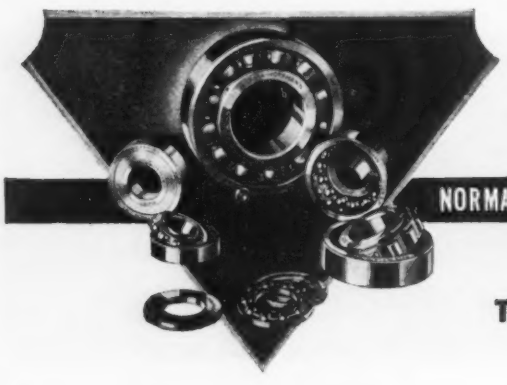
DOW

CHEMICALS INDISPENSABLE
TO INDUSTRY AND VICTORY



TODAY—"on land, at sea and in the air", on fighting fronts and production lines—NORMA-HOFFMANN PRECISION BEARINGS are contributing to the Victory that will clear away the clouds of war.

TOMORROW—bettered by the added skill and experience gained in war-time — they will be equally instrumental in solving the problems of design and production of a world at peace.



Let our engineers work with you, NOW.

NORMA-HOFFMANN BEARINGS CORP'N., STAMFORD, CONN., U. S. A. FOUNDED 1911

PRECISION BALL, ROLLER AND THRUST BEARINGS

TO WIN THE WAR—*Work—Fight—Buy War Bonds!*

My new rayons are something to write home about!"

MISS or MRS. ULTIMATE CONSUMER is not familiar with such technical hosiery knitting terms as *throwster, press-offs, or lubricity*. But she is a real authority on the quality of the finished product. She can tell at a glance whether her stockings have a clear, attractive stitch or not. And she soon learns if they are going to give her lasting service or not. And of course her approval—or disapproval—is a vital factor in the successful manufacture and sale of hosiery.

By employing either of two Nopco treatments to size rayon yarns for full-fashioned hosiery knitting—many manufacturers and throwsters are making more certain that their finished product will please Miss or Mrs. Ultimate Consumer. Both treatments practically eliminate press-offs in knitting. They yield greater knitting production, prevent kinking and add lubricity to the yarn for knitting that aids in a clear stitch formation.

WRITE FOR FREE DESCRIPTIVE BOOKLETS

Booklets describing Treatments No. 1 and No. 2 are yours for the asking. The information they contain is practical and timely for hosiery throwster and manufacturer alike. Why not write for your copies?

"NOPCO" HOSIERY TREATMENT NO. 1
A solvent-soluble type for limited drying capacity

This blend of high-melting point synthetic waxes when combined with solvent simplifies soaking procedure where drying capacity is limited. Saves time. No drying necessary following soaking operations. Consistency and uniformity of treatment are easily controlled.

"NOPCO" HOSIERY TREATMENT NO. 2
A water-emulsifiable type for acetate yarns

This water-emulsifiable synthetic wax compound is similar to Treatment No. 1 but in water soluble form. It is extremely easy and economical to use. No special equipment is needed; ordinary soaking methods can be used. Requires no organic solvents, eliminating toxic fumes and fire hazard. Well adapted for use on Acetate yarns as well as the Viscose and Bemberg yarns.

NATIONAL OIL PRODUCTS CO.
HARRISON, NEW JERSEY

Boston • Chicago • Cedartown, Ga. • Richmond, Cal.

Actual photograph of Gulf Lubrication Service Engineer W. G. Robertson checking the lubrication of frame driving gears in a prominent textile mill. Every day, Gulf Service Engineers are "in the picture" in scores of mills and plants from Maine to New Mexico — helping to maintain production and reduce maintenance costs through proper lubrication.

When the Gulf Lubrication Service Engineer is in the picture ———

—production stays at peak levels

—maintenance costs are low

It's not his ready and tactful cooperation alone that makes the Gulf Lubrication Service Engineer a welcome visitor to this and many other prominent textile mills. The results of his work show up in lower repair bills and better performance from mill machinery. No wonder the door is always open to him!

Here's why Gulf Service Engineers provide such effective help to hundreds of mills: They have a background of thorough training and broad practical experience covering the lubrication of all types of textile machinery. They *know how* to get peak efficiency from every unit by the scientific application of the proper lubricants.

For maximum production and minimum maintenance costs in *your* mill, make sure of your lubrication—call in a Gulf Service Engineer to help you install the best lubrication practice. Write, wire, or phone your nearest Gulf office today.

Gulf Oil Corporation · Gulf Refining Company

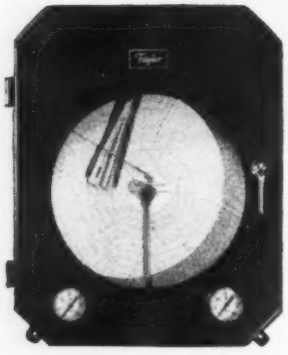
Gulf Building, Pittsburgh, Pa.

GULF INDUSTRIAL LUBRICATION

BECCO
ELECTROLYTIC
HYDROGEN
PEROXIDE
Keep in touch with
BECCO
HYDROGEN PEROXIDE TECHNICAL SERVICE
for accurate, reliable, and comprehensive information on Peroxide Bleaching of all fibres... by all Methods and Procedures including all systems of Continuous Bleaching.
BECCO
BECCO SALES CORPORATION
BUFFALO, N. Y.
Branch Offices in Boston, New York City, Philadelphia, Chicago and Charlotte

NOT A DAY TOO EARLY

to order new Taylor Fulscope Controllers!



NO, the war isn't over. And Fulscopes are still in great demand by the critical war industries. But our backlog of top-priority orders is rapidly being whittled down to the point where we soon may be able to resume satisfactory deliveries to our good and patient friends in the textile industry. And you couldn't feel any happier about that than we do!

We make no promises. But we strongly suggest that you place your order NOW for the following requirements:

1. SLASHER CONTROL . . . Taylor Instruments on slashers can definitely increase your weave room efficiency and give you *duplication* of previous satisfactory results.

2. DYEING . . . Color is likely to vary if temperature fluctuates *at all* during the dyeing operation. But with Taylor Fulscope Controllers on the job, temperatures stay *automatically* right. Result is uniform quality, fewer redyes and rejects.

3. SIZE COOKING . . . The new Taylor Fulscope Time Schedule Controller gives you completely automatic control. Just load the kettle and push the button!

4. COTTON GOODS FINISHING operations, such as mildew-proofing and waterproofing with "Zelan," require accurately controlled drying temperatures for maximum control of the specified qualities. A Fulscope will do the job!

Look your requirements over carefully—and call your Taylor Field Engineer. Taylor Instrument Companies, Rochester, N. Y., and Toronto, Canada. *Instruments for indicating, recording and controlling temperature, pressure, humidity, flow, and liquid level.*

ARMY NAVY

Taylor Instruments

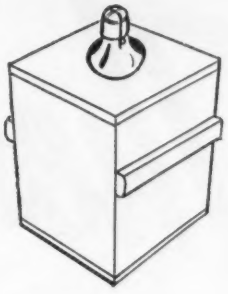
MEAN

ACCURACY FIRST

IN HOME AND INDUSTRY

★ KEEP ON BUYING U. S. WAR BONDS AND STAMPS ★

What every workman should know

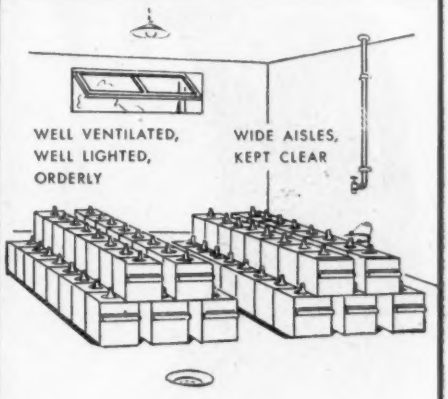


about handling acids in carboys

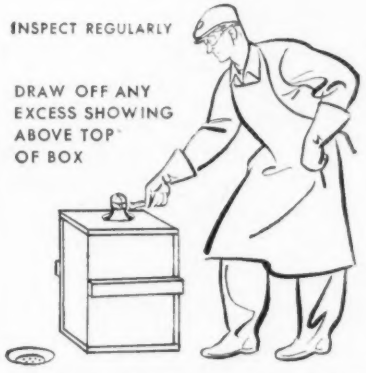
...to avoid interruptions in Victory Production

Men should be thoroughly instructed, properly clothed. Before moving, carboys should be inspected for leakage, loose stoppers. They should never be handled by neck or with hooks.

Thrust prongs of special truck under carrying cleats of carboy, then lift by bearing down on handles. Boxed carboys should *never* be "walked" on their lower edges.



Cinders or concrete treated with sodium silicate are best for storage floors. On dirt floors, place carboys on 2″x 4″ supports. Three tiers high is maximum, two preferable.



In hot weather loosen stoppers of carboys containing volatile liquids to vent pressures that might cause breakage. Provide drainage in storage space in case of breakage.

When opening carboy, keep hands, face to side... never over neck. Never twist or pry off wire holding stopper... use face-type wire cutters. Never empty by applying air pressure.

Finally, never use a carboy to hold anything but same product it originally contained. Drain completely to prevent spillage in rehandling. Return as promptly as possible.

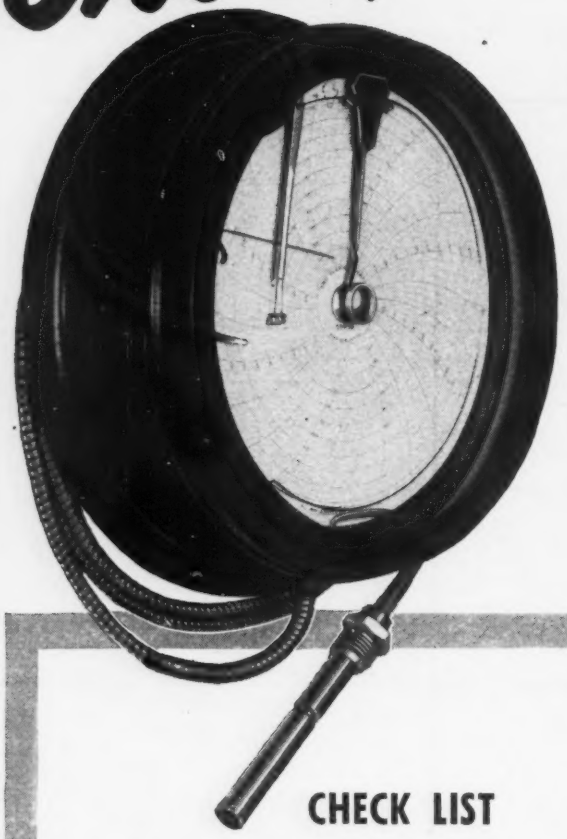
These suggestions are offered as reminders to all who handle acids in carboys... and particularly as reminders to those who are charged with training new employes. They are based on one of a series of bulletins published by the Manufacturing Chemists' Association. For specific chemicals conservation suggestions for your plant or assistance in training new employes to handle chemicals safely, write: MONSANTO CHEMICAL COMPANY, St. Louis, Missouri.

MONSANTO CHEMICALS

SERVING INDUSTRY...WHICH SERVES MANKIND

"E" FOR EXCELLENCE—The Army-Navy "E" burgee with two stars, "representing recognition by the Army and the Navy of especially meritorious production of war materials" over a two-year period, flies over Monsanto.

Check These Chances

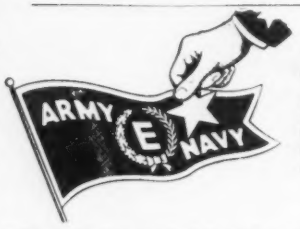


to improve your production through temperature records!

CHECK LIST

A few major temperature points where records from Foxboro Temperature Recorders often reveal opportunities for important production improvements:

AGEING MACHINES	DRYERS
RAYON BARATTES	WASHERS
BLEACH KIERS	SLASHERS
STEAM BOXES	DYE TUBS
SIZE BOXES	SHREDDERS



A STAR IS ADDED . .

For continued outstanding production, The Foxboro Company has won renewal of the Army-Navy "E" Award.

Is it worth a few minutes of your time to stop important losses in your output, wastes of fuel, or spoilage of materials? All you need to do is review the critical temperature points in your equipment, and make sure you're getting daily records that "show up" such production losses!

No matter what step in your operation demands uniform temperature, Foxboro Temperature Recorders will automatically give you exact information to save quality-variations, spoilage and re-runs. Their ultra-sensitive thermal system reacts instantly to slightest temperature deviations. Their light, strong mechanism "writes it down" *accurately* for years, without attention except routine chart changes.

The Foxboro Temperature Recorder is one instrument you can always depend on. Precision-engineered for accuracy, endurance and trouble-freedom, it gives the facts at minimum cost per year! Write for full details in Bulletin 193 2. **The Foxboro Company, 84 Neponset Avenue, Foxboro, Massachusetts, U. S. A.**

FOXBORO

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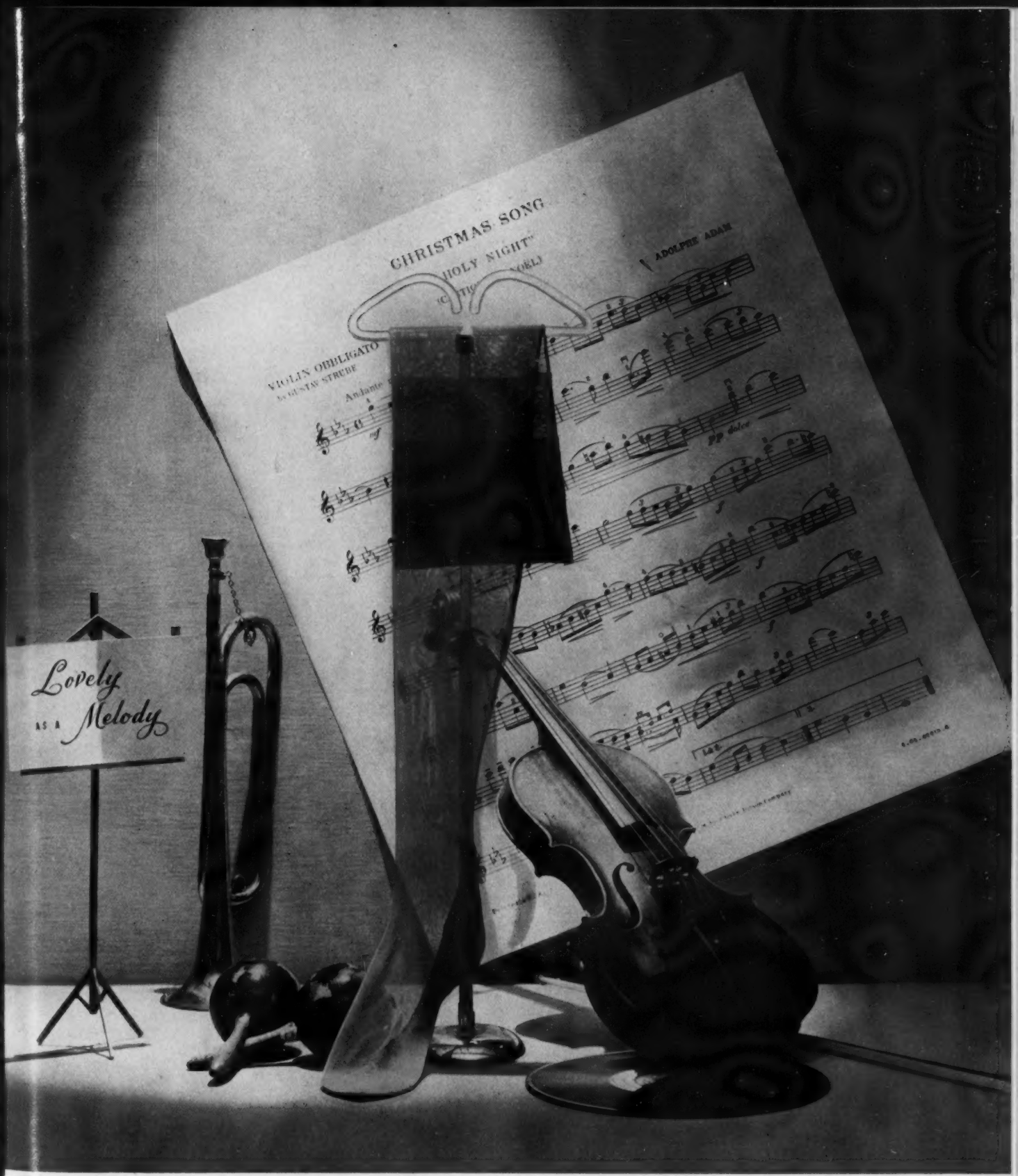
TEMPERATURE RECORDERS



Lovely as a Melody . . . Every woman knows that the soothing beauty of clear, even-textured stockings lies in the quality of the fabric. Every hosiery manufacturer knows that only the finest of needles can give superior knitting results. Keep your knitting machines young and effective with TMW Needles . . . *And, remember: Regular Reneedling Pays! Let us put your needle bars in shape for faster, more accurate, more profitable knitting.*

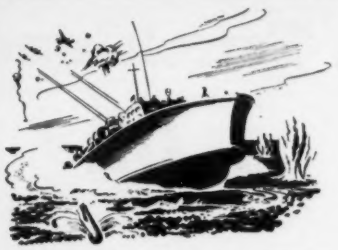
TEXTILE MACHINE WORKS • READING, PA.

"He hurts the good who spares the bad."
SYRUS

First award in America of the 3-Star Army-Navy "E" made to TMW for Ordnance production up to January 25, 1943.

Until the Victory is Won! . . . The men and experience back of Reading Full-Fashioned Knitting Machines are enlisted for the duration. We *cannot* give you new machines — but we *will* do the next best thing: Our engineers will do their utmost to help you keep your present equipment at highest efficiency. *Let us tell you about our complete reconditioning service and what it means in terms of better fabrics and bigger profits.*

TEXTILE MACHINE WORKS • READING, PA.

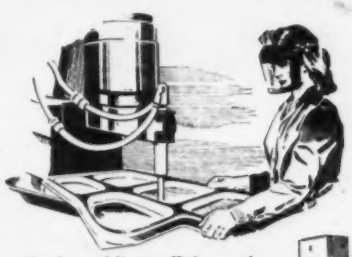


Fresh food on the high seas during long, heavy-action periods away from port is the result of compact, efficient refrigeration.

Self-Contained
¼ h.p. Refrigerating Unit

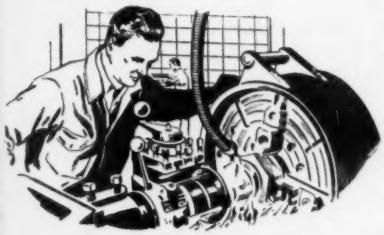
Cool, clean air protects the life of the wounded in Army hospitals. Special aircraft refrigerators safeguard serums and plasma.

Aluminum
Aircraft Refrigerator



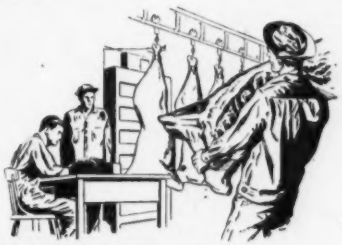
Peak welding efficiency is made possible by cooling of welding tips with water or brine held at the right temperature.

Spot Welder
Tip Cooling Unit



Tool life is increased and rejections are fewer when cutting oils used in high-speed machining are properly cooled.

Refrigerating Unit

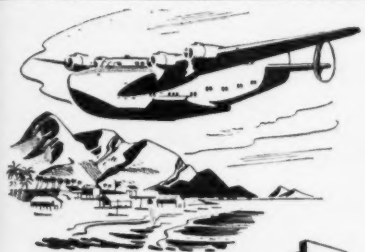


The health of our armed forces is protected by dependable refrigeration in cantonments, huts, barracks, and on ships.

14 Cylinder
Refrigerating Compressor

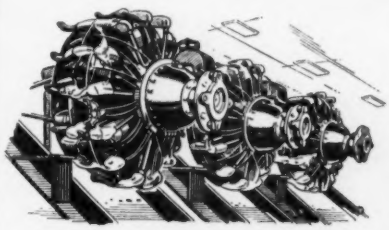
Super accuracy in gauge rooms is possible when the air is clean, dehumidified, and maintained at a constant temperature.

3 h.p. "Packaged"
Air Conditioner

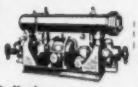


Protection in the tropics against the ravages of humid atmosphere and vermin is necessary to preserve food and equipment.

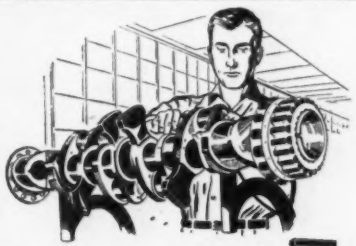
Portable Panel
Refrigeration Unit



Identical performance of aircraft engines is assured by operation tests with carburetor air kept at the same temperature.



14 Cylinder
Air Conditioning Compressor



Clean, dry atmosphere is vital for machining sensitive metal surfaces where a spot of rust would ruin high-precision products.

5 h.p. "Packaged"
Air Conditioner

★ CHRYSLER AIRTEMP AT WAR ★

From tiny, fractional horsepower to big 75 horsepower units, Chrysler Airtemp Radial Compressors are performing a major war job on both the production and battle fronts.

The science of air control is built around the compressor. Chrysler Airtemp's *exclusive* Variable Capacity Radial Compressor provides a new efficiency and accuracy in indoor climate regulation. The radial cylinders cut in or out automatically, one at a time, to meet varying load requirements. This flexibility eliminates the peaks and valleys resulting from abrupt starting and stopping of ordinary compressors . . . holds temperature and humidity at a constant level.

Years spent in building delicate mechanisms, have developed high-precision, versatile skills at Airtemp, now devoted to war production. Backed by Chrysler Corporation research and engineering, when peace comes, these skills will again create heating, cooling and refrigeration units for homes and commercial use that will set new, high standards of efficiency and performance.

The lessons learned during peace in free competitive enterprise—freedom of the individual to produce and compete—today bring strength to a nation at war.

War Products of Chrysler Corporation

Tanks • Tank Engines • Navy Anti-Aircraft Guns • Army Anti-Aircraft Guns • Bomber Fuselage Sections • Bomber Wings • Bomb Racks • Bomb Shackles • Fighter Landing Gears • Aluminum Alloy Forgings • Aluminum Alloy Castings • High-Powered Aircraft Engines • Cycleweld Cement • Wide Variety of Ammunition • Anti-Tank Vehicles • Command Reconnaissance Cars • Troop and Cargo Motor Transports • Ambulances • Weapons Carriers • Gyro-Compasses • Navy Pontoons • Marine Tractors • Harbor Tugs • Marine and Industrial Engines • Smoke Screen Generators • Air Raid Sirens and Fire Fighting Equipment • Powdered Metal Parts • Cantonment Furnaces • Tent Heaters • Refrigeration Compressors • Field Kitchens • and Other Important War Equipment

Tune in Major Bowes every Thursday, C B S, 9 P. M., E. W. T.

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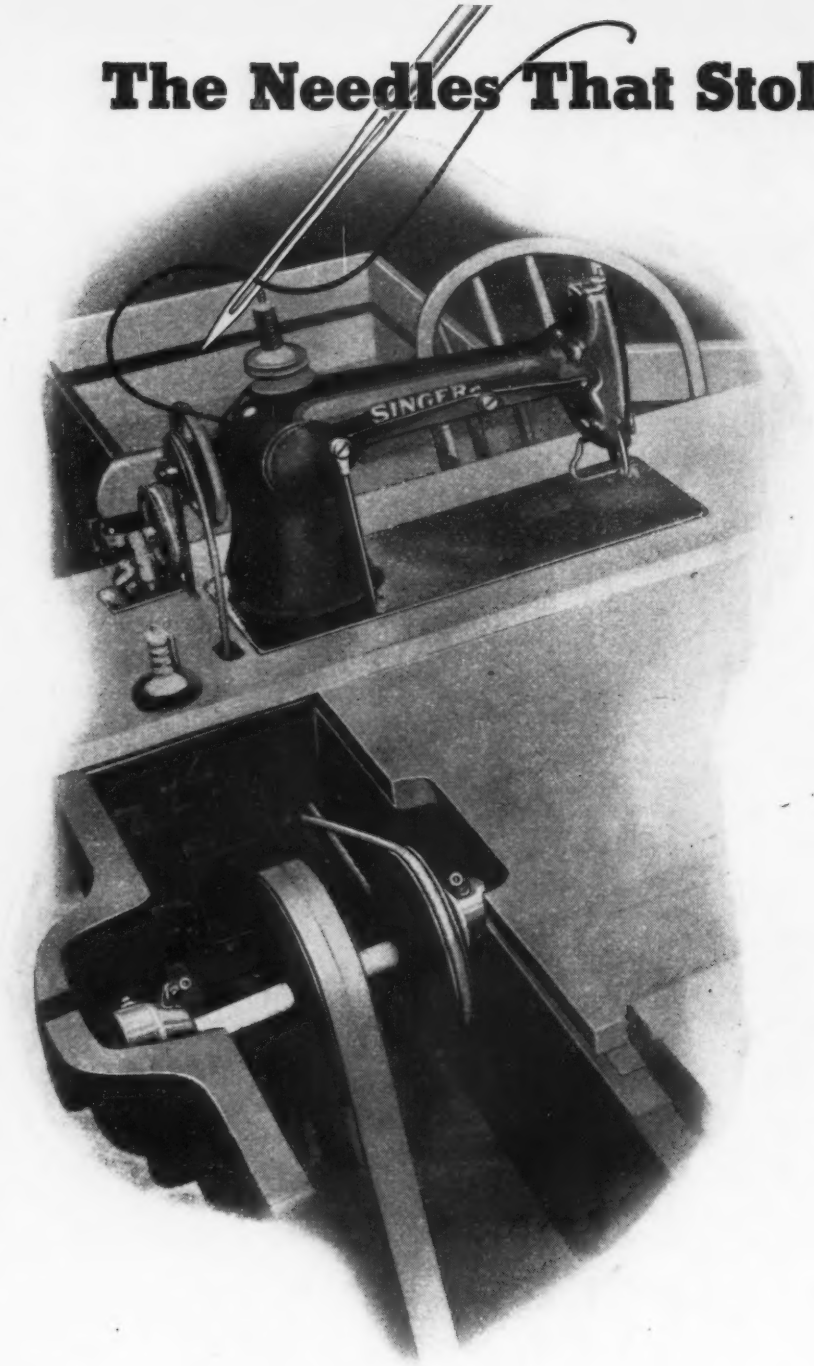
PLYMOUTH • DODGE • DE SOTO • CHRYSLER • AIRTEMP • AMPLEX

BACK THE ATTACK—BUY WAR BONDS

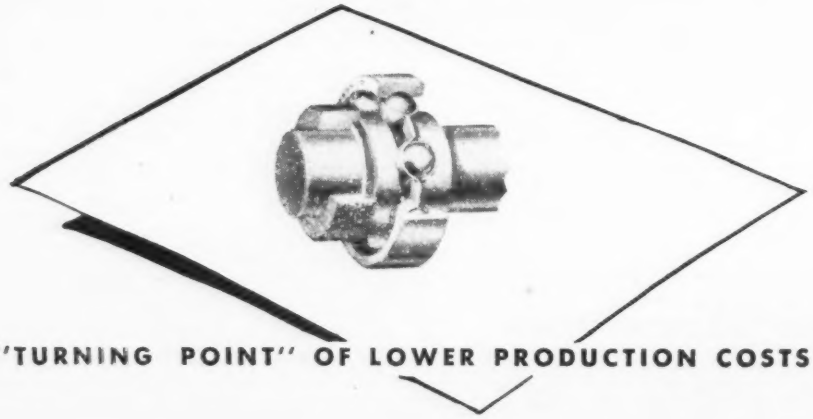
The Needles That Stole A Truckload Of Oil



You wouldn't think it would cost much to lubricate shafts that drive nothing but needles. But load eight 55-gallon drums of good grade lubricating oil into a truck – *drive it to the dump* – and you'd be wasting almost exactly the quantity of lubricant that this famous clothing manufacturing plant did, every year.

The theft was exposed by Fafnir Ball Bearing Sewing Machines Boxes – "kid brothers" of the easily-mounted Fafnir Pillow Blocks and Lineshaft Boxes you probably use in your plant. 600 of them replaced the plain bearings. In the first year, they saved $107 in lubricant alone – and released two men from overtime maintenance to other duties.

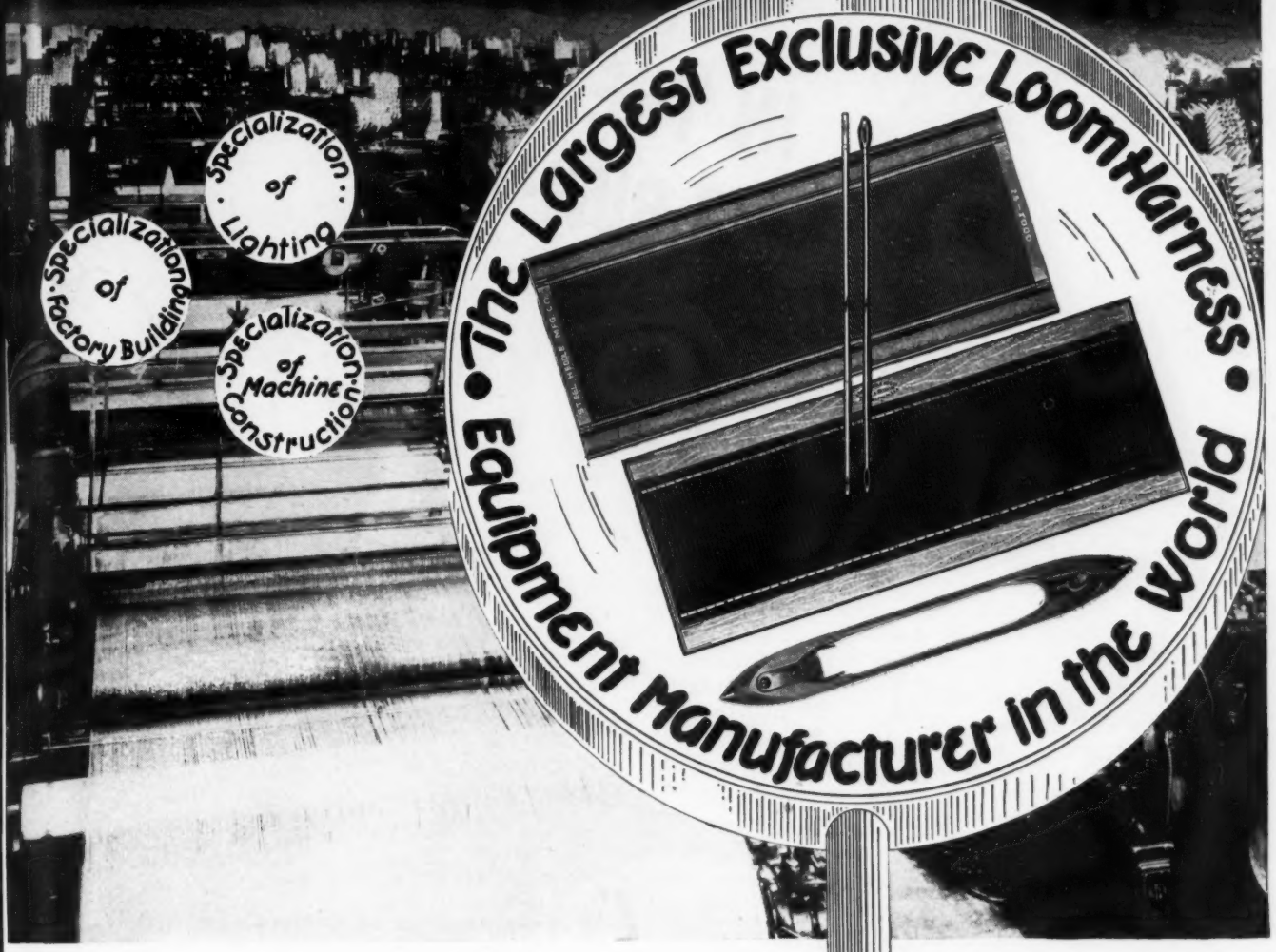
Your equipment is heavier than sewing machines? Then you can probably make proportionately larger savings! For there are Fafnir Units for every application, and no other ball bearing units make the turning point to reduced maintenance so easy to attain. Fafnirs alone offer the long-life Balanced Design – deeper races, larger balls. The Fafnir Bearing Company, New Britain, Conn. Branch offices: Atlanta, Birmingham, Boston, Charlotte, Dallas.



"TURNING POINT" OF LOWER PRODUCTION COSTS

FAFNIR
Ball Bearings

This is
The Day of Specialization—
The Day of Production and Quality


Specialization of Lighting
Specialization of Factory Building
Specialization of Machine Construction
The Largest Exclusive Loom Harness Equipment Manufacturer in the World

That is Why You Must Have the **Proper** Loom Harness Equipment

for each fibre you intend to weave. It stands to reason that the heavier gauge wire, larger designed eye of a cotton heddle won't work out in the weaving of the delicate rayon fibres.

It is not intended for this type of weaving, But.....

There is a definite

Flat Steel
Heddle
Harness
Frame
Dog Wood or Persimmon
Shuttle
Pitchband or All Metal
Reed
for each fibre to be woven.

Here is where our field engineers can be of great help to you.

Their services are free to you.

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BRANCH OFFICES ALL OVER THE WORLD

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FLAT STEEL HEDDLES—HARNESS FRAMES—ALL TYPES OF LOOM REEDS—
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2100 W. Allegheny Avenue Philadelphia, Pa.

FIELD ENGINEERS IN EVERY DISTRICT

IN THE LONG RUN—

IT'S VATROLITE*

Whether you use Vatrolite on Army and Navy clothing—complete from underwear to outerwear—or in regular vat dye and color reduction for civilian outlets, you can count on 4 essential factors:

1 LONGER—LARGER RUNS

Vatrolite's full strength and unfailing uniformity makes this possible.

2 LESS DUSTING

Vatrolite's *granular uniformity* keeps dusting to a minimum. Also, its chemical structure assures less free SO_2. All this means better working conditions for your men—less sneezing and coughing, less absenteeism.

3 EXACTING RESULTS

Vatrolite's *high stability* (the result of strict laboratory control) has been attested and approved by practical application in leading plants throughout the country. It assures long-lasting quality.

4 ECONOMY

Vatrolite is clear white. Its high uniformity and stability result in longer runs—therefore real economy. Leading mills in many industries are discovering this in ever increasing numbers.

Write today for details on Vatrolite.

*Sodium Hydrosulphite Concentrated

ROYCE CHEMICAL COMPANY

CARLTON HILL, NEW JERSEY

MANUFACTURERS OF HYDROSULPHITES INCLUDING VATROLITE*, PAROLITE*, DISCOLITE*, AND SULPHONATED OILS INCLUDING VELV-O-RAY*, CASTROLITE*

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THE OUTSTANDING FEATURE of the January issue will be a special section commemorating 50 Years of Progress in Electrification of the Textile Industry. An introductory article in this section will describe and illustrate the original installation of power-generating equipment and motors put into operation at Columbia (S. C.) Mills in 1894 and the modern electrical equipment now employed. Following this will be a second article discussing other major developments in electrical and electronic equipment which have found application in the various branches of the textile industry. Rounding out this special section will be a brief look into new applications for electricity which can be foreseen in the postwar period. Other major articles scheduled for January include the following: Grex—A Proposed Universal Yarn Numbering System, Ready Reckoners Simplify Textile Calculations, Throwing Nylon Yarn, Quality Control Charts, Continuous Peroxide Bleaching Installation.

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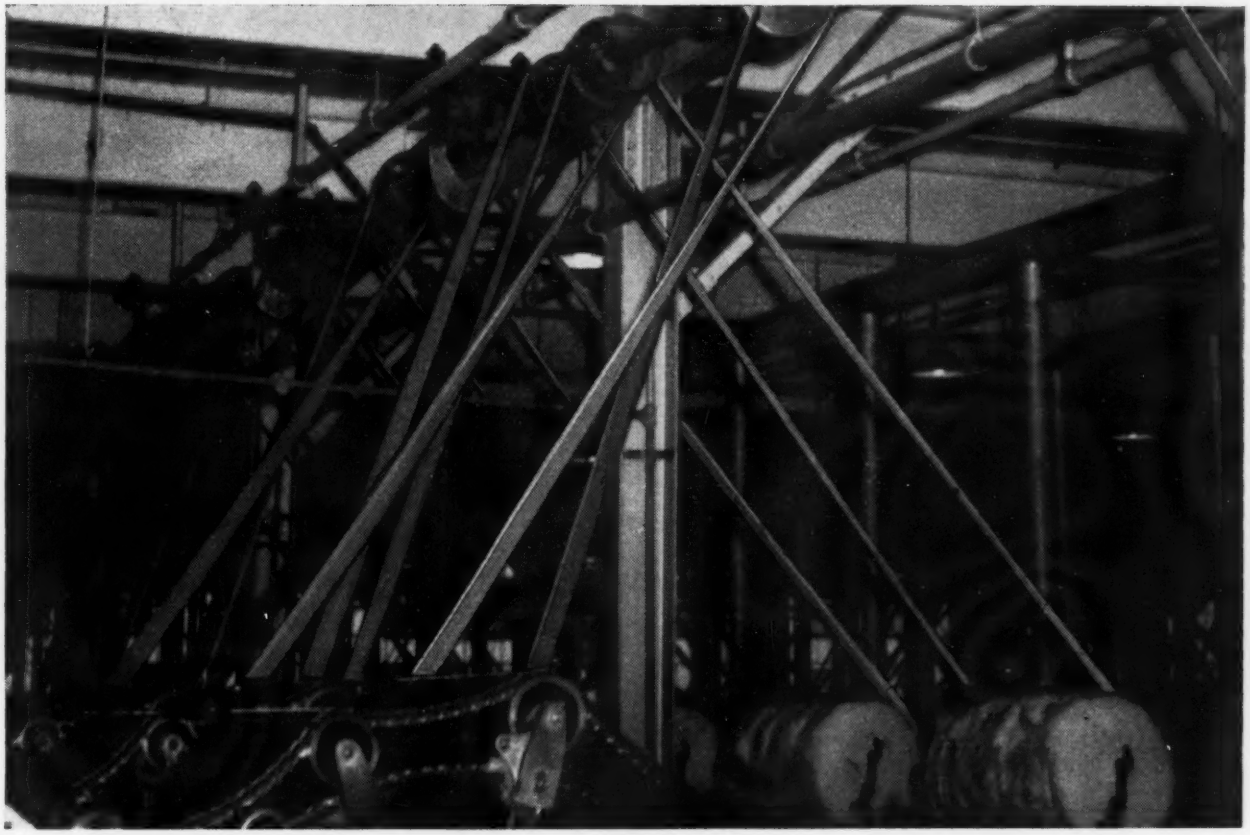

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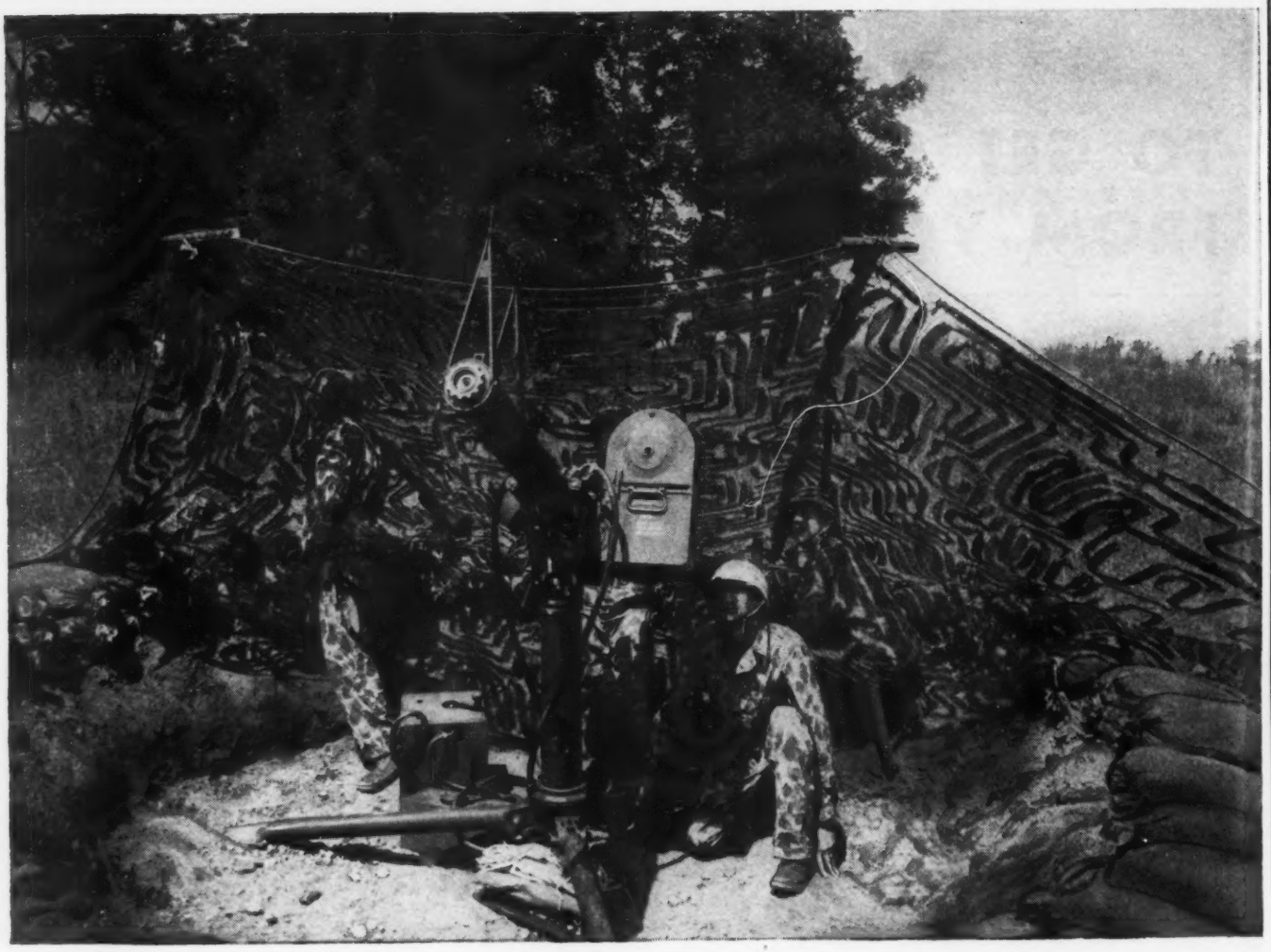

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Free Enterprise

THE OPPORTUNITY AND OBLIGATION TO COMPETE

WE can be prosperous beyond our dreams—all of us—workers, farmers, and business men—but one of the prerequisites is the self-discipline of accepting competition for ourselves as well as others.

* * *

Free enterprise does not imply the freedom to use any or all means to make a profit. It does not mean the right to monopolize. ***It means the opportunity and obligation to compete.***

Competition requires ***independence of action, free access to the market,*** and ***no large degree of control over the price*** by any buyer or seller. In general, the larger the number of sellers and the more easily buyers can shift from one seller to another, the higher will be the degree of competition (and vice versa for buyers).

But let us not get too academic or go off the deep end. We cannot have perfect competition. We cannot subdivide businesses and labor unions into tiny units to make a multitude of buyers and sellers in each market; we cannot reduce our rich variety of products to a few rigidly standardized items; we cannot educate people to judge quality precisely; we cannot eliminate the costs of bridging space between buyers and sellers. On the other hand, have we gone as far as is practical and desirable in these directions?

We cannot even have a system of highly "sensitive" prices, that is, prices which fluctuate immediately in response to every minor change in demand and supply. This would occur in the dream world of competition-to-the-nth-degree. It cannot occur in the real world, or even in the ideal world of competition best suited to physical facts and human qualities. The economies of large-scale enterprise, the need for adapting products to human wants, the costs of transportation and the costs of issuing and acquiring market information put severe limits on price sensitivity.

Economists tell us that if prices were extremely sensitive, business booms and depressions would be much less severe—provided our stock of money remained fairly constant. But with the somewhat limited degree of sensitivity which is practicable in the economy, price and wage changes cannot prevent severe declines in business activity. ***We cannot count on competition alone to cure depressions.*** We must look mainly to other kinds of measures to prevent mass unemployment of men and machines.

If we cannot have prices which fluctuate with every small change in demand and supply conditions, we can work toward—and achieve, if we really want it—a system in which prices and wages are at least roughly responsive to long-run changes in demand and supply, a system in which most markets are not dominated by individual businesses, groups of businesses, labor unions, or farm organizations, and in which prices and wages are maintained at levels consistent with free access to markets and to jobs.

In any kind of an economic system there must be some means of determining prices, wages, and profits, and of bringing labor and capital into employment in the industry and place where they are most needed. There are two ways to do this: by administrative fiat or by the impersonal processes of the market. The first of these is typical of the totalitarian state; it frequently involves destruction of individual freedom or fumbling mismanagement. During the war all of us have had some experience with patronizing and paternalistic treatment by the state; we have found out what it means to be pushed around by bureaucrats; and we have discovered that the political determination of prices, wages, and profits leads to chaos when self-interest supersedes the fine fever of patriotism—as it eventually does. I do not mean to imply that we can do without controls over prices, production, and distribution in time of war; but I do suggest that we can learn something from their operation. Even with a united national purpose these controls work badly when human abilities are inadequate for the superhuman task, when personal or departmental jealousies crop up among officials, and when pressure groups try to prey on the rest of the public. Every day more Americans are beginning to understand why our forefathers feared the caprice and tyranny of power.

The impersonal processes of the market in determining prices and wages and in allocating productive resources will, in normal times, save us from the fumbling of bureaucrats and from the Babel of confusion, un-

certainty, and annoyance produced by their regulations. But these market processes will not save us from paying toll to those who monopolize and restrict entry to markets or jobs.

If we want an economy in which we are free to try out new ideas, develop new products, and introduce more efficient methods of production, if we want an economy in which there are great opportunities for men of imagination, inventiveness and energy, if we want an economy wide open to progress, then we must have a free field and fair competition for all comers—without collusion as to prices, markets, or production. This is the only basis on which we have a right to demand freedom from governmental regulation for ourselves and on which we can combat monopolistic tendencies in other quarters.

Let us stand squarely for the principles of the anti-trust laws and against all collusion and combination in restraint of trade. Let us insist that the government review with a critical eye every combination and consolidation which might restrict competition. Let us face frankly the problems of economic power arising out of price leadership and encourage every honest effort to find means to deal with them. Let us not shrink from questions as to whether some great aggregations of plants are too large for efficiency, free entry into the industry, and a free price. While we resist the efforts of the Department of Justice to extend the anti-trust laws by far-fetched and distorted interpretation, and while we fight every attempt to use them as a tool of persecution, let us cooperate in sincere efforts to modernize these laws and extend them by specific legislation to monopolistic practices they cannot now reach. I do not have a simple formula for this, but I believe we must try to find one.

We can then, better face the problem of the growing monopoly in labor which is threatening to make the free enterprise system unworkable. Today labor is going through a stage of empire building reminiscent in some ways of a similar stage in business three-quarters of a century ago. Witness the same buccaneering spirit, the same concentration on selfish interests, and the same disregard for the public welfare. Business leaders learned the hard way that the public will eventually rise up against those who prey upon them. Will our labor leaders be wiser? The right to collective bargaining to protect the weak position of the individual employee is one thing—but the grant of unlimited monopoly privilege to combine into a private government which can dictate its own terms to businesses, industries, communities, and even to the government itself, and which can start a wage-price spiral such as to hinder the war effort and make full prosperity impossible in time of peace is something quite different. We need to find a middle way which will prevent employers from exploiting employees but which does not sow the dragon's teeth. The exercise of arbitrary power by labor threatens not only business, but also all workers outside the unions and all those dependent on pensions and savings for their existence, and ultimately, of course, the well being of union workers themselves.

The idea that the labor problem can be solved if great, powerful organizations of employers will sit down with great, powerful organizations of labor is a delusion. If our experience in the N.R.A. and in the war teaches us anything, it is that the best that can be expected in the long run from such a situation is an armed truce with intermittent civil war. And every truce would be a monopolistic arrangement to take advantage of those not members of the great organized groups. Business and labor unions, whenever confronted with postwar readjustments that are unfavorable to them will be sorely tempted to protect their own special interests at the expense of the public. There will be efforts on the part of businesses, abetted by labor unions, to limit productive capacity, to raise tariffs, to obtain subsidies, and to maintain prices at artificially high levels. The unions will oppose labor saving changes and will seek higher wages even in areas and industries of surplus labor. Already demands are emerging for direct joint action by business, labor, and agriculture to solve the transition problems of special concern to them. While these groups should have every opportunity to register their own self-interest, we cannot entrust our fate to decisions made by pressure groups. If experience is any guide, such coalitions will be almost certain to restrict opportunities for progress and expansion, to exploit the public, and ultimately to injure even the businesses, workers, and farmers included in them. We cannot afford a postwar N.R.A. Resort to temporary government regulation in the transition from war to peace may, however, be necessary in cases of great hardship.

We can be prosperous beyond our dreams—all of us—workers, farmers, and business men—but one of the prerequisites is the self-discipline of accepting competition for ourselves as well as others.

President, McGraw-Hill Publishing Company, Inc.

Textile World

EDWIN D. FOWLE, EDITOR

The Get-Together

"THE TEXTILE INDUSTRY has lagged badly behind others in setting up labor-management committees," according to War Production Board officials, as reported in the first article of this issue. The comment is disconcerting—not because our textile producers have to shake around the knees when they receive criticism from the nation's capital, as presumably an Axis textile manufacturer shakes when he learns of unfavorable comment in Berlin or Tokyo, but because of the implication that perhaps our industry is not fully alert to an important phase of modern industrial progress.

The primary function of the labor-management committee is to help the war effort by getting the entire mill personnel to exchange ideas on ways to increase production and improve the serviceability of the product and to see that those ideas are carried out. All manner of production problems come within its scope—the development of short cuts in processes, the training of green help, the reduction of absenteeism, the building of morale, the minimizing of waste, and so on.

BUT THAT IS NOT ALL. Besides being a benefit to the war effort, such a program is a definite contribution to the welfare of the mill as a private enterprise. Increased production increases profits, even if only through reducing costs by a thinner distribution of overhead. Higher efficiency—whether obtained by technological improvements, raised morale, or better-trained help—again reduces costs. Improved quality expands the market for the product. All these advantages are obvious.

In addition to these advantages, however, the labor-management-committee idea offers something of great value, even if rather intangible, toward the improvement of relations between employer and employee. It is particularly because of this fact that any implication that the textile industry—a great employer of labor—is lagging behind other industries becomes disconcerting. A step toward better understanding between executives and workers benefits both the individual industry and America at large.

The American public has a right to look to an industry as vast and important as the textile industry for leadership and help in solving the industrial problems which beset the nation.

THE LABOR-MANAGEMENT COMMITTEE is not in itself the final answer to disagreements and misunderstandings. It was apparently not originally conceived as even an important step in that direction; and today the ironing out of employer-employee differences is not listed among its functions by its sponsors in Washington. And yet it seems obvious that the labor-management committee could prove to be the first and most essential step toward this all-important goal.

This is because, to reach a mutual understanding, it is first necessary to know the other fellow's viewpoint—what he is thinking and why he is thinking it. It is important to see and know his human side—to watch him sometimes smile at the same jokes you smile at, to realize that he, too, is often worrying about his personal security and the comfort and happiness of a very human family at home—to learn, in other words, that basically his interests and yours are very much the same.

A letter or a written order is bound to be read a little differently from the way it was written. A message conveyed by a third party is almost certain to be somewhat misinterpreted. It is undoubtedly for just these reasons that Roosevelt and Churchill, for example, have striven so persistently to arrange a get-together with Stalin. Woe to any man who cannot calmly enter a discussion, open-mindedly listen to the opposition, and patiently explain his viewpoint.

To repeat, then, the first essential toward improved relations is the get-together, and the labor-management committee provides the opportunity.

Edwin D. Fowle

Thirty Textile Mills Experiment

LABOR-MANAGEM

Purpose is to speed production, improve product, and prepare the way for better employer-employee relations

A SIGN OF THE TIMES, in more than one way, are the Labor-Management Committees sponsored by the War Production Drive Headquarters of the War Production Board and adopted voluntarily by individual units throughout American industry. Established for the immediate purpose of boosting the quantity and quality of war production, the Labor-Management Committees are looked upon as laying the ground work for improved relations between employers and their employees after the war.

To date the textile industry has subscribed to the principle on only a modest scale, with but 30 mills thus far recorded in Washington as having adopted it. Yet Government officials point out that our industry is particularly well adapted to profitable acceptance of the idea. If so, it is obvious that consideration should be given the matter by many more textile mill men.

The first part of this article presents the WPB viewpoint, with specific recommendations for the organization and operation of Labor-Management Committees. The second part records the experiences of a mill which adopted the principle nearly four years ago.

Since it is expected by all concerned that each plant will devise its own labor-management program according to its individual needs or the ingenuity and interpretive ability of its personnel, the details are bound to vary mill by mill. The Avondale experiment reported here differs in some particulars from the Washington recommendations, but it is obvious that it satisfactorily accomplishes the desired results—increase in production, improvement in quality of product, and a better understanding between employer and employee with respect to mutual problems and respective responsibilities.

In the early evolutionary stages of the movement, it will be most desirable for mills to exchange ideas and compare results. Indeed, it will be a patriotic action for them to do so in view of the potential benefits of the program to our American system of manufacture. To facilitate such exchange of information, TEXTILE WORLD will be happy to receive from textile mills, with a view to publication, detailed reports on the organization and functioning of Labor-Management Committees as they develop experience with them.

ADVICE FROM WASHINGTON

BY GLADYS MONTGOMERY
Washington Editor, TEXTILE WORLD

T. K. QUINN, director general of War Production Drive.

BACKED STRONGLY by Government, management, and labor, the set-up of Labor-Management Committees has gained tremendous momentum in recent months. The establishment of 212 new committees within the last few weeks brings to 1,012 the number of new committees since June, when the drive started—a 50% increase over the number registered at that time. At this writing, over 3,000 such committees, covering 6,000,000 workers in war plants, shipyards, and mines, are actually functioning; and it is expected that by the close of 1943 the number will reach 4,000. They have been set up in plants in every section of the country, for all types of industries, and in every size of plant from less than 100 employees to more than 40,000 employees.

Important Washington officials, who see in the movement a partial answer to the manpower problem and a new instrument for increased production and better quality of production, point out that the textile industry has lagged badly behind others in setting up such committees. They stress the fact that because of the nature of its producing organizations, their development, the kinds of prod-

...ent With ...NT COMMITTEES

Poster used to solicit suggestions for production short cuts.

ucts, and the types and training of the people involved, the textile industry is one that would be benefited greatly by the general adoption of the principle of Labor-Management Committees. The announcement from the War Production Drive headquarters that a textile representative soon will be named on the Awards Board indicates awareness of the importance attached to getting the textile industry into step with the movement. This Board is made up of twelve members—including technical experts from various industries and including represtentaives of labor, both CIO and AFL. It gives awards for constructive ideas submitted by employees and lists the winning suggestions in the weekly newspaper which is sent to all L-M Committees.

PURPOSE. What is the basic thinking back of the movement? What results are expected from these committees? Both questions have been authoritatively answered in a statement prepared for TEXTILE WORLD by T. K. Quinn, director-general of the War Production Drive, who tells the story thus:

"Greater and more efficient production is now and will continue after the war to be a common, constructive objective of every American, whether he owns, manages, or is employed in a factory or mill. This is, in fact, our only hope for full employment. We may expect continuing differences over the division of the fruits of brain and brawn, and dissatisfaction and grievances between employer and employee, but all must join together in promoting the plans and methods for creating the maximum total wealth to be shared by all, just as we have made victory in this war our common-front objective.

"Labor - Management Committees are devoted exclusively to the task of increasing the grand total of quality production and value, where other agencies and organizations may be primarily interested in just how it is to be divided and shared, and the terms and conditions under which it is produced. There is no better way for people with real or fancied differences to get together and learn to understand each other than to begin working with some common purpose toward an agreed enlightened objective, and the Committees furnish the medium. No one who foresees the absolute necessity of indispensable industrial harmony can afford to discount the opportunity for developing the mutual appreciation and respect that the Committees afford.

"Labor - Management Committees are wholly advisory. There is no infringement of the rights or prerogatives of either side. They provide the means for management and labor, which may in some instances be more or less estranged by the industrial disturbances of the last few decades, to get together again on common ground. They offer forums in which the lesson may be learned and firmly implanted in the minds of more and more producers that there is very much more to be gained by everyone working together and increasing the grand total, than in quarreling everlastingly over just how the lesser amount already available is to be portioned out, important as that may also be.

"Mutual satisfaction, order, discipline, and teamwork are most likely to develop in a mill where management has demonstrated its understanding and good will by establishing a Labor-Management Committee. So it is that bond purchases, war-chest contributions, safety programs, and all of the other constructive campaigns reach their highest goals in plants where this kind of teamwork is organized and actively promoted.

"The most convincing evidence of the value of the Committees comes from those who have established them. They are not all functioning properly

WPB LIST OF TEXTILE-MILL LABOR-MANAGEMENT COMMITTEES

Alabama

Avondale Mills, Pell City

Avondale Mills
Sycamore

Avondale Mills
Sylacauga

Bemis Bros. Bag Co.
Talladega

California

California Cotton Mills Co.
Oakland

Standard Felt Co.
Alhambra

Connecticut

Bigelow-Sanford Carpet Co.
Thompsonville

Cheney Brothers
Manchester

Myrtle Knitting Mills
Unionville

Georgia

Atlanta Woolen Mills
Atlanta

Illinois

Burton-Dixie Corp.
Chicago

Indiana

Real Silk Hosiery Mills
Indianapolis

Massachusetts

Barre Wool Combing Co.
South Barre

Berkshire Woolen Co.
Pittsfield

Boott Mills
Lowell

Michigan

Great Lakes Thread Co.
Detroit

New Hampshire

Nashua Mfg. Co.
Nashua Mills and Jackson
Mills, Nashua

New Jersey

Eavenson & Levering Co.
Camden

Wall Rope Works, Inc.
Beverly

New York

Cluett, Peabody & Co.
Troy

Vogt Mfg. Corp.
Rochester

North Carolina

Erwin Cotton Mills Co.
Durham

Ohio

Landers Corp., Toledo

St. Marys Woolen Mfg.
Co., St. Marys

Oregon

Portland Woolen Mills
Portland

Pennsylvania

Belle Knitting Corp.
Sayre

La France Industries
Philadelphia

John B. Stetson Co.
Philadelphia

Tennessee

Bemis Bros. Bag Co.
Bemis

West Virginia

J. L. Stifel & Sons
Wheeling

or constructively. But the overwhelming majority are honestly, if sometimes imperfectly, striving for and securing mutual benefits. The Committees are means toward an end, and not ends in themselves. Like any other agency or medium, they must be sparked and worked to get the best results."

SETTING UP COMMITTEES. The War Production Drive headquarters has worked out a general pattern for setting up L-M Committees:

Organization. Plans are made at preliminary meetings of labor and management, separately and together. Agreement is reached as to the number and types of representatives to be chosen by each. Both management and labor have an equal number of representatives on the committee. If a recognized union represents the employees, the union determines the method of selecting labor's committee members. If no recognized union exists, the labor members are selected by some other method satisfactory to the employees. It is agreed that grievances and collective bargaining matters will not be handled by the committee, but will be referred to collective bargaining or other established machinery. It is agreed that top management will be represented on the committee to get decisions quickly and that labor members will be responsible leaders of the workers, able to secure the fullest participation of the workers in the program developed.

Election. The L-M Committee should choose a chairman, whether management or labor, who will be a good presiding officer to steer business efficiently. Sometimes labor and management co-chairmen are selected, who alternate every month or so, or one is chairman and the other secretary. Some L-M Committees appoint an executive secretary to spend full time on committee work.

Program. The program is up to the individual committees. A survey is made of the problems at the plant, and whatever seems most important is tackled first. Such activities include production problems, suggestions, quality of work (reduction of rejects), health and safety, absenteeism, transportation and housing, salvage and conservation of materials, care of equipment, etc.

Sub-Committees. Many of the plants find that it is necessary to delegate work to sub-committees, consisting of an equal number of labor and management members. Usually the first sub-committees to be organized are the ones on production problems, suggestions, publicity, and transportation. Others follow as needed.

The Start. When the L-M Committee has been established, it should announce its program through rallies, bulletins, and statements in whatever publication the plant may have.

The L-M News. An official weekly "plow back" organ of the War Production Drive, known as *L-M News*, is sent to all committees. It serves as a post exchange for ideas and suggestions that have been tested and found worth while. Already the News has a circulation of 50,000 and plans are under way to increase the circulation.

BENEFITS OF PLAN. The end benefits accruing from the work are not in any sense standardized. As might be

expected, they differ from plant to plant and from industry to industry. In one place there may be suggestions for utilization of music to speed up production; in another place, a new device; in another, a plan for reducing absenteeism; etc.

One of the most interesting of recent L-M Committee reports comes from Westinghouse Electric & Mfg. Co., Pittsburgh, where a former Russian refugee, Max Kholos, invented a splicing technique which has made cotton-web belting practical for use on many machines and has saved thousands of dollars' worth of time and materials in the construction of war equipment. This valuable discovery won for Kholos a certificate from the awards board, besides a cash bonus from Westinghouse and a patent on the method. The patent rights are held by the company for the duration of the war, but the process is made available to other companies.

Illustrating the value of teamwork, rather than of any one spectacular achievement, Bemis Brothers Bag Co., St. Louis, reports on its success with L-M Committees:

"We have 23 plants located throughout the country, of which at least 19 have L-M Committees. The first of these committees was organized in June, 1942. Each plant was given a free hand in forming its committee in order that each would have one best suited to its needs. Some of the plants have, therefore, committees whose principal duty is to handle suggestions, while others are more highly organized with active sub-committees to handle production, suggestions, absenteeism, safety, etc.

"In general we feel that the L-M Committees are doing a good job. They aided in formulating a suggestion system which was installed in January, 1943, and it is expected that at least 800 minimum awards will be granted by them before the end of 1943. They have performed a real service to their fellow employees by arranging ride pools and helping them obtain supplementary gasoline. Where excessive absenteeism has existed, they have tackled the problem with some success. They have conducted campaigns to convince employees that we are an industry important to the war effort and that production must be kept at a maximum. They have sponsored, through sub-committees, good-housekeeping programs, safety campaigns, war-bond and stamp sales, and salvage. Many of the committees have held rallies, played appropriate recordings, and showed inspirational films. The posters and pamphlets received from the War Production Drive headquarters are important factors in building morale. We also have artists in many of our plants who make posters pertaining to our particular division of industry."

RESULTS AT AVONDALE

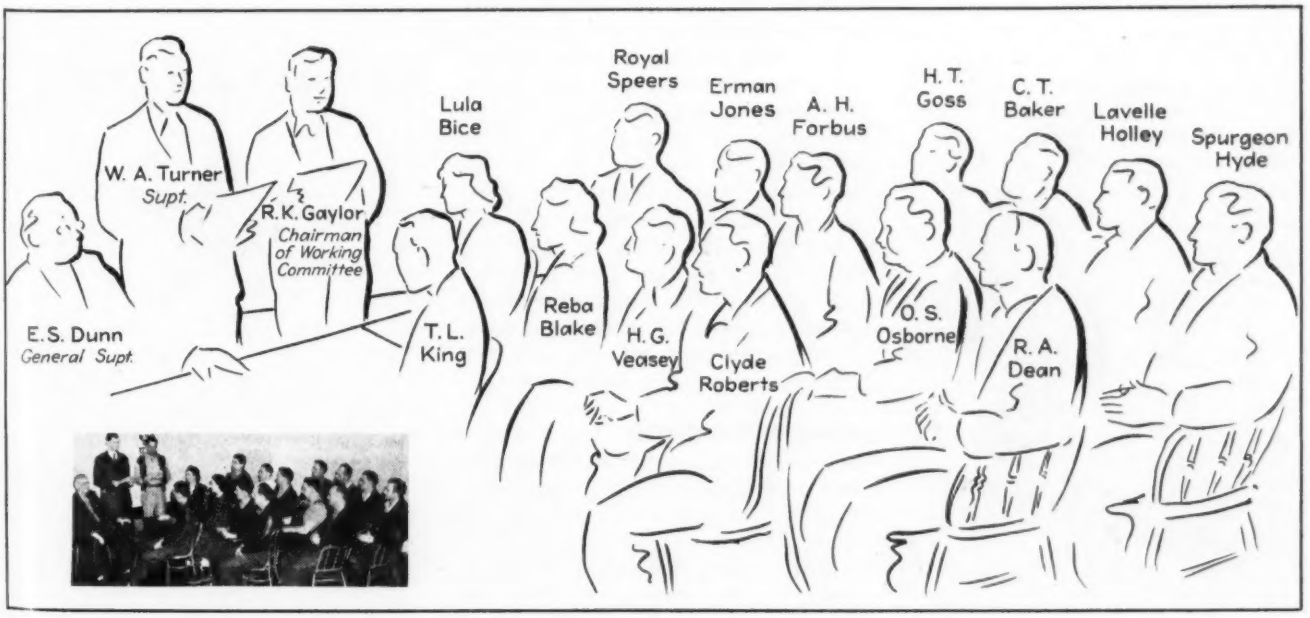
By **E. S. DUNN**, *Vice President and General Superintendent, Avondale Mills*
and **F. L. ASBURY**, *Assistant General Superintendent in Charge of Manufacturing*

DONALD COMER has believed for many years that, if management will take its employees into its confidence, tell them its problems, and give the employees a part in solving those problems, a fine relationship between employees and management will be promoted. Early in 1939, Mr. Comer organized a Labor-Management Committee at each plant of Avondale Mills patterned after the Donald Nelson plan which had worked so successfully for many years at Sears, Roebuck & Co.

The purpose of these committees is to co-ordinate the efforts of Avondale Mills and its employees and promote good relationship.

The committees must comply at all times in letter and spirit with the National Labor Relations Act and any other federal or state legislation which may be enacted from time to time.

At Avondale Mills we have a General Employees' Committee and an Employees' Executive Committee, and we shall try to give in the following



Avondale employees shown attending meeting in picture on front cover.

some idea as to how these committees work.

GENERAL COMMITTEE. The members of each plant elect a General Employees' Committee by secret ballot. No employee is entitled to vote by proxy. The members are fairly proportioned from all departments of the plant and the office, in accordance with the total number of employees in each department.

The General Employees' Committee elects its own chairman to serve one year. One-third of the total members are elected to serve one year; one-third, two years; and one-third, three years. In case of a vacancy caused by resignation, disability, leaving the employment of that particular plant, or death, a new member is elected by the remaining members of the committee.

The General Employees' Committee does not meet at a regular time, except for the regular election of new members, but is called together from time to time by the management to discuss various questions that arise in the mills, such as a wage adjustment, a war-bond drive, a discussion of some new income-tax law, or some new government regulation which the management thinks should be brought to the attention of all the employees in the mill.

EXECUTIVE COMMITTEE. From this General Employees' Committee is elected an Employees' Executive Committee. This election is also by secret ballot, and again no employee is allowed by vote by proxy. The Employees' Executive Committee then elects its own chairman to serve for one year. If a vacancy occurs in the Employees' Executive Committee, it is filled with exactly the same procedure as in the General Employees' Committee.

The management has a regular monthly meeting with the Employees' Executive Committee, at which time many questions are brought up and recommendations made by the committees, a great many of which are carried out. The management feels free at any time to call upon the Employees' Executive Committee for help and advice in solving any problems concerning the operation of the plant. It is the duty of the committee to receive and act upon any suggestion from an employee.

This committee cooperates with the supervisor of each department in the appointment of operating committees, such as: (a) committee on waste, (b) committee for economy in supplies and repairs, (c) committee on safety, (d) committee for proper lubrication of machinery, and (e) committee for cleanliness and orderliness.

We encourage our Employees' Executive Committee to visit the local schools and let the teachers know that, next to the Church, they represent the most important part of our community welfare.

We have found that the Employees' Executive Committee is a great help to the management, as it keeps us in close touch with the situations which exist in the mills, especially personal problems that arise from time to time, including differences between employees themselves and between employee and management. A great many times the committee can give us information that management without its help would not obtain and would therefore be unable to act upon.

In all such matters as planning bond drives, preparing for an "E" award, and preparing for the annual spring inspection, we call on our committees to help us put the program over. At our regular monthly committee meetings we discuss safety in all its phases —seconds, bad-running work in the mill, waste, cleanliness, absenteeism and complaints on the quality of our product; and we find that these members are anxious to help out and that they make many useful suggestions.

MISUNDERSTANDINGS. Our theory is that we do not want matters to remain unsettled. If there is a misunderstanding, we want it cleared up. In many cases, an employee would prefer to talk to the chairman of his committee before bringing a matter to the attention of his supervisor or superintendent. At these meetings, each employee is urged to bring out anything that he thinks needs attention in his department, especially any grievance or misunderstanding in the minds of the employees.

We don't mean to infer that all matters between the Employees' Executive Committee and the management are smooth and that no difficult problems arise, for we do have rough spots to smooth out; but we do bring out in these meetings grievances and misunderstandings, and every effort is made to clear these up. If the management is wrong, we try to make a correction; and, if the employee is wrong, we try to so convince the committee.

At our regular monthly meetings, questions come up about wages and job loads, and such matters are thoroughly discussed by the superintendent and the committee members. If, after the discussion, a difference of opinion still exists, we have a time study made of the job in question by our Cost Department and explain the results to the committee members. Controversial matters are quickly settled through competent time studies.

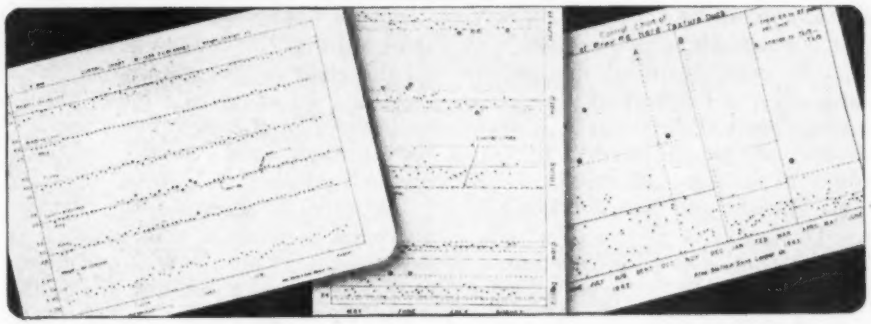
EMPLOYEES ONLY. The Employees' Executive Committee and the General Employees' Committee are composed only of employees—no second hands or supervisors can be members. If a member of either committee is promoted to a supervisory capacity, he immediately loses his place on the committee and a new member is elected from the employees. This is done so that the committees will always be representative of only the employees and the management will

(*Continued on page 125*)

Poster to teach safety and efficiency.

Poster to discourage absenteeism.

Quality Control Charts



Adoption by Government procurement agencies of statistical methods for control of quality of products purchased makes it imperative for textile manufacturers to familiarize themselves with these new techniques and to apply them in their own mills. Companies which have already put these methods to use find that they are of value not only in helping to meet the specifications for textiles for military use, but also in saving manpower and critical materials through reduction of waste. At the suggestion of officers of the Philadelphia Quartermaster Depot, we asked Mr. Ashcroft to prepare this introductory article outlining the development of statistical methods of quality control and the use of quality control charts. Further details on this important subject will be presented in subsequent issues of TEXTILE WORLD.

By A. G. ASHCROFT
Product Engineer, Alexander Smith & Sons Carpet Co.

Aid textile manufacturers in meeting strict requirements of Army and Navy

● Use of statistical methods in quality control is not new, but the rapid application of these techniques to the purchasing of textiles by the supply branches of our Army and Navy is a matter of vital interest to producers of textile materials. At a recent meeting of the Cotton-Textile Institute, Col. Frank M. Steadman, of the Philadelphia Quartermaster Depot, reported on the program at the Depot for the rapid application of statistical quality control methods to sampling techniques for acceptance inspection and testing of textiles and fabricated items. The Jeffersonville Depot is also working along similar lines. Philadelphia QM may be able in the near future to present illustrations of the technique used in acceptance inspection. In the meantime, however, textile manufacturers may wish to investigate other possible applications.

Statistical quality control is a new tool of production management. An engineer in promoting such a new tool or method is confronted with a sales problem usually too great for his training or inclinations. Invariably, a kind of over-emphasis is necessary to obtain the desired attention; and yet this must be combined with a degree of honesty of perspective which often results in an uninspiring factual or historical approach to the discussion. In a sense, therefore, a presentation of this nature is best confined to the form of an engineering paper offered to a group of specialists interested in quality control, rather than in the form of an interest-stimulating article for those concerned with the broad aspects of management of textile manufacturing. The present war, however, has caused changes in many instances so fundamental that a report on them is a "must" to those concerned with developments in textiles.

DEVELOPMENT OF CONTROL CHARTS. Production managers know that quality control is a problem as old as mass production. A generation ago Frederick W. Taylor emphasized it by separating the function of quality maintenance from the function of maintenance and development of production efficiency. An inspection force distinct from a producing group was a first step in an answer to the need for pressure toward uniformity of quality in mass production. In intervening years we learned that inspection does not make "quality," for it does no more than record performance or classify a degree of quality performance. It succeeded in helping quality maintenance only when particularly alert management used its records as incentives to action directed at the producing or engineering functions. Unfortunately, without a quantitative measure or standard of performance, the action attempted might as often as not be ill-timed or misdirected and the incentive fall into disrepute. Frequently the existence of a level of variability in quality might be economically desirable and attempts at improvement too costly.

In 1931, Dr. Walter A. Shewhart, of Bell Telephone Laboratories, stimulated an entirely new conception of quality control and initiated a philosophy in the control of quality that has become the new standard for modern production control methods. In 1935, the American Society for Testing Materials condensed some of these principles into a short manual on the "Control Chart Method of Analyzing Data" and the interest and application of the techniques grew rapidly thereafter.

The War Department had experienced the values of these techniques through the development work of Col. Leslie B. Simon, at its Arsenal at Picitinny and Proving Grounds at Aberdeen, Md. In 1939, long before Pearl Harbor, it requested of the American Standards Association the development and publication of manuals outlining the proper methods of development and application of the statistical quality control methods. As a consequence, the American War Standards, Z1.1, Z1.2, and Z1.3 on the control chart method were published and are available to American industry for translation into action. It is of great interest that these war standards were adopted almost at once by the English, Canadian, and Australian War Standards groups.

TECHNIQUE USED. The control chart method of controlling quality during production is a technique using a chronological graph as a record of the quality characteristic being measured and the consequent use of the chart record as a basis for action with regard

to the production processes. On the chronological graph are placed a pair of control limits computed and plotted on a statistical basis, so that if the plotted points of the test results fall outside these limits, this fact may be taken with assurance as an indication that a cause of variation has occurred that is worth while seeking out and identifying.

The chart, therefore, is a method that assists in judging the significance of variations in the quality record plotted on it daily. The indication that action should be taken to find causes for changes in quality when plotted values fall outside control limits is its most valuable addition to the technique of quality control.

It is normally understood by engineers concerned with the control of quality that although variations and deviations from the desired level occur, it is difficult to know when these variations indicate a cause which is relatively easy to find and can therefore be corrected unless a mathematical measure such as is afforded by the statistical tool is used for their evaluation. The control chart record assists the engineer and the production manager in his decision to go after and correct assignable causes at definite periods in the production process. It is not a method for accepting quality production lot by lot, but a method for maintaining and improving the level of quality performance day by day. Although the technique for computing the control limits is based on statistical theory, the actual operation involves only simple mathematics and is, consequently, well within the capacity of the usual inspection and testing personnel.

Certain sub-committees of the Committee D-13, of the American Society for Testing Materials have included these techniques in the development of test methods, and some textile manufacturers have found them valuable in textile war production where rigid quality standards must be met.

Alexander Smith & Sons Carpet Co. had applied these techniques to its control of scouring, dyeing and yarn-purchasing for several years and on conversion to the manufacture of Army and Navy duck and blankets found the techniques of value in orienting its production quality to average specification level requirements. The techniques were found of great value whenever specifications required an average be maintained of lot-to-lot performance of weight, strength, and count of duck and blankets. The control charts in use have permitted a reduction in the number of tests and an assurance of quality level. They have tended to more rapid action toward production methods and product specification changes than would have resulted from former lot-testing methods.

APPLICATIONS OF CONTROL CHARTS. It is not possible in a short article to cover in detail many of the specific illustrations of the work of these techniques. Three illustrations are shown, however, of the application of the control chart to test data on the U. S. Army Blanket and No. 6 Hard Texture Duck.

Charts Nos. 1 and 2 show a number of separate control charts on one page covering the weight, strength, and yarns per inch of blankets and duck. Each quality characteristic might well have been a separate chart; however, because of the inter-relation of the properties measured, their inclusion on one graph was useful. Observe on Chart No. 1, for example, the control data for the characteristic marked, "count—warp." There is a central line or average value at about 28.2 ends per inch, and a specified Government minimum at 28.0 ends per inch, and two control limit lines whose values were obtained statistically. The dots shown on the chart represent the average ends per inch obtained by measuring 5 samples during each production period. As long as these dots remain within the control limits of 27.9 to 28.5, no action in connection with quality control is necessary or advisable. We know that as long as these values are within these limits the variation in quality is not significant or worthy of locating, even though the dots may occasionally be below the Government minimum of 28.0 ends per inch. However, when the dots jump outside the limits, as they did on this chart in June, we should, and did, hunt for causes and found them in changes in the wet processing of the blankets, and changes in the methods resulted.

Chart No. 2 shows similar records for weight, strength, and count for woven hard-texture duck and that an assignable cause for variation in weight occurred in July, 1942. Investigation disclosed that this was caused by variation in the yarn weight and filling count. Changes were made in the construction of the duck, since improvement in the quality of the purchased yarn was not possible.

Chart No. 3 shows a record of the porosity or leakage values of a gray duck and illustrates how the control chart shows the effect, not only of changes in levels and improvements in quality, but also evidence of greatly improved levels of variation and, consequently, improvement in the degree of control of quality. Note that the average value of leakage dropped from 100 cc. to 75 and to 30 and, in addition, the dotted line (upper center limit) showed a similarly large improvement in the variation between

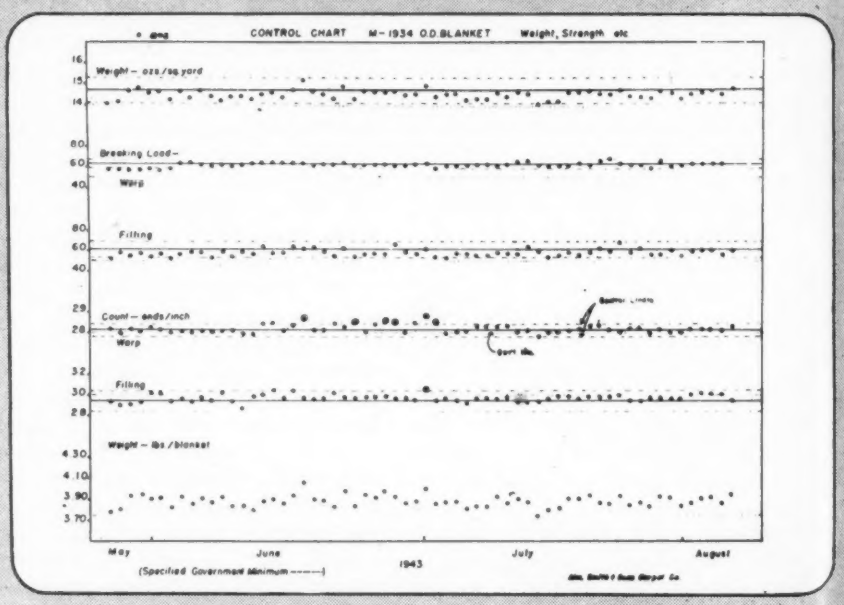


Chart 1. This chart is used for controlling weight, strength, and yarns per inch of Army blanket.

samples. Incidentally, this improvement continued and the need for testing porosity was eliminated, with a resultant saving in laboratory testing time.

The detailed technique for setting up control charts is given on pages 9 to 19 of American War Standard Z1.3, which is obtainable from the American Standards Association, 29 West 39th St., New York. Further details on statistical methods of quality control are given in the following publications:

1. "Economic Quality Control of Manufactured Products," Shewhart, D. Van Nostrand Co., New York.
2. "Manual on Presentation of Data, Supplement B," American Society for Testing Materials, Philadelphia.

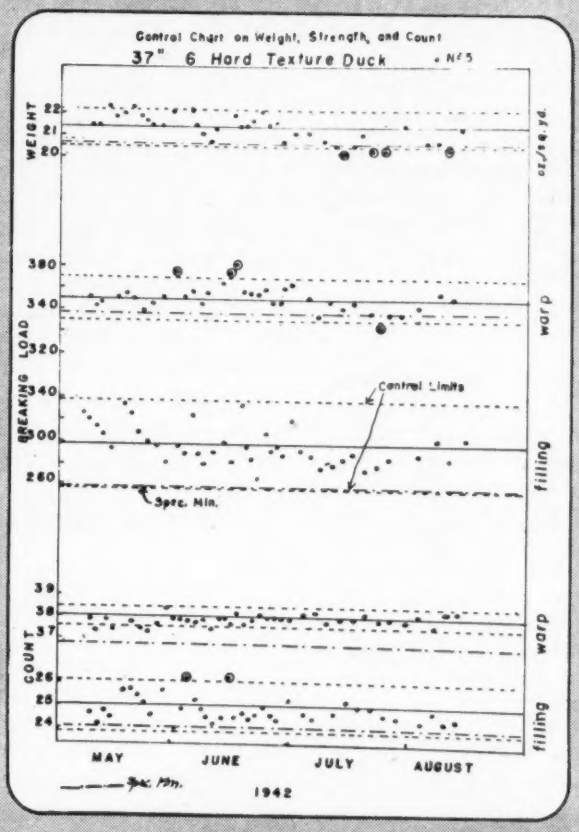


Chart 2. This chart is similar to Chart 1, but is used for controlling quality of No. 6 hard-texture duck.

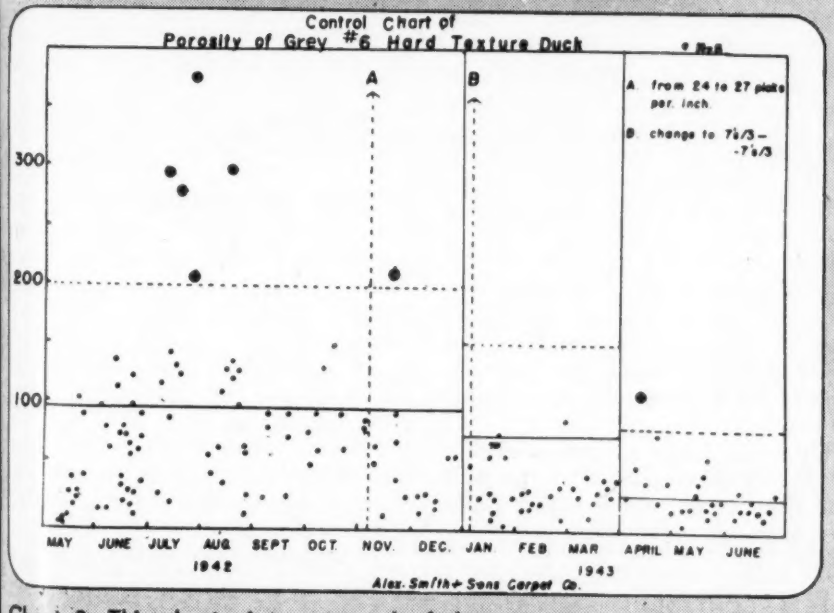


Chart 3. This chart gives a record of the porosity or leakage value of cotton duck.

EDUCATIONAL PROGRAM. Currently several universities and colleges in major war-industry centers are offering 10-day intensive courses in application of statistics to industrial quality control. This educational program is sponsored by the Office of Production Research and Development of the War Production Board, and was instituted under the direction of Dr. Holbrook Working and Dr. W. E. Deming. Commenting on these courses, Dr. Working states: "No short course, whether full-time or part-time, can turn out highly-trained statisticians. The men trained in short courses are encountering some statistical problems that are beyond their ability. When a statistical problem is encountered that deserves the efforts of a highly trained statistician for its solution, it is often possible to arrange for the assistance of an expert. But the main need, for improvement of quality control in American industry, is to get effective use made of the powerful statistical tools that can now be put in the hands of intelligent men with only a short statistical training of the right kind."

Statistical quality control will not by itself make quality or uniformity. Men, not systems, make material and build machines and product. The control chart method is a tool for engineers and production managers which will help them to take decisive steps toward development or control of quality. It offers assurance of when to act, for it tells when deviations from desired quality levels are economically controllable or when inspection costs can be cut or wastage of labor or materials reduced. Taking the action necessary will remain the prerogative of the managers of American industry.

The choice of the type of action needed to bring about a return to a state of statistical control is the responsibility of the production manager and his engineering staff. The control chart technique makes it possible for an individual without engineering training to tell the engineer at a time indicated by data that *action now* will probably mean improvement *now* and the maintenance of quality control. It has been the unvarying experience of those using these techniques that when the production manager acts as a result of this data, the returns to management have been both happy and valuable.

Slashing Methods in Sixteen Mills

As reported at "meeting-by-mail" of the Textile Operating Executives of Georgia

Due to wartime restrictions on travel and the demand on mill men's time to secure more production, the executive committee of the Textile Operating Executives of Georgia last spring substituted a "meeting-by-mail" for the conventional group discussions on carding and spinning. More recently a "meeting-by-mail" was conducted for the consideration of slashing and weaving problems. Through the courtesy of the executive committee, TEXTILE WORLD is privileged in this issue to carry a report of the discussion of slashing methods. A report of the survey on weaving problems will appear in a subsequent issue.

● Methods employed by 16 mills for slashing cotton warps as reported by the members of the Textile Operating Executives of Georgia who participated in the recent "meeting-by-mail" are summarized in following article and the accompanying chart. The chart and summary of other data were compiled from replies to questionnaires mailed to the members of the association by the executive committe which planned the "meeting."

Study of the chart reveals that although all 16 mills employ cornstarch, not all use starch of the same fluidity. At times one mill has used tapioca starch, and one has used sago. Time for stirring and bringing to a boil ranged from 15 to 45 min., with six mills taking 30 min. Most mills cook the size at a temperature of 210 to 212° F., with one mill reporting a temperature of 230°. On this point one member commented as follows: "After reaching the boiling point, the temperature should be held at 210° F., or higher until cooking is finished. Allowing the temperature to drop while cooking has a tendency to cause lumps to form in the mixture. The boiling point varies with the altitude. We have been told upon good authority that for every 550 ft. change in altitude above sea level, allow 1° F. drop in boiling temperature up to an ultimate elevation of 2700 ft." Cooking time ranges from 45 min. to 2 hr. 10 min., with six mills taking 1 hr. for cooking.

Stretch of yarn on the slasher ranges from 1 to 2%. Several members stated that yarn strength is affected at stretches over 2%; with one stating that strength of 31s yarn is affected at 1¼% stretch.

Regain of slashed warps ranges from 6½ to 8½%. Six mills employing Moist-O-Graphs for controlling regain reported that they are obtaining very satisfactory results.

Slasher speeds range from 20 to 70 yd. per min.

APPLYING FLANNEL TO SQUEEZE ROLL. Methods employed for applying flannel to the squeeze roll to prevent it from slipping, wrinkling, and rolling back differ in detail. General practice is first to clean the roll and paint with white or red lead, using one to three coats. One mill uses knurled brass rollers, which do not require painting. Next the filler is applied; fillers used are sheeting light duck, and heavy duck. Several mills first cover the roll with duck or sheeting and then with burlap. Length of fillers used ranges from 1½ to 9 yd. The woolen blanket or flannel is applied last, several mills wetting or dampening the blanket; two mills put a piece of old blanket over the new blanket; and one mill uses its old blanket next to the filler until the new blanket is broken in. Length of blankets ranges from 2½ to 9 yd. One mill uses 5½ yd. of cotton blanket.

Where cotton and wool yarn is used to cover the top squeeze roll, the ratio ranges from 30% cotton and 70% wool to 50% cotton and 50% wool, with frequency of dressing ranging from daily to every 10 days.

Several members reported that excellent results are being obtained from the use of ball bearings on the slasher creel and head end. Advantages cited are smoother operation, less vibration, better control of stretch, and less wear on journals.

One mill is using women slasher tenders to pick and lay in the sets, run lease strings, watch slasher while it is running, sweep floor, and clean copper.

WASTE CONTROL. Suggestions made for minimizing waste at the slasher are as follows:

1. Insist on good warping.
2. Have same yardage on all beams; try not to exceed 1% variation in a set; advise overseer of warping if some beams run out of warps before other beams.
3. Run sets as low as possible on warper beams. If one beam runs out before others, continue to run set until loose ends have reached front of slasher; tie new set in on the back and pull over with the new set.
4. Handle section beams carefully to prevent snagging of ends.
5. Have uniform tension on all section beams.
6. Have warps properly leased when doffing.
7. Get new set leased as soon as knots get through size bar.
8. When pulling over new set, don't doff loom beam at front until knots come into sight.
9. Maintain same tension on each section beam in slasher.
10. Inspect friction regularly.
11. Be sure tender starts new sets properly.
12. Post record of pounds of front waste and back waste of each slasher where tender can see amount.
13. When set runs out, empty size box and run tail end of set through dry box.
14. Have close supervision and well-trained slasher tenders.

OFFICERS OF ASSOCIATION. At the last meeting of the executive committee, the following officers were elected: general chairman, Julian M. Longley, general manager, American Thread Co., Dalton, Ga., to succeed J. H. Daughdrill, vice-president of Callaway Mills, La Grange, Ga.; vice-general chairman, W. R. Beldon, manager, Clark Thread Co., Clarkdale, Ga., succeeding Mr. Longley; and secretary-treasurer, Robert W. Philip, editor of *Cotton*.

The membership of the executive committee for the duration is as follows: F. B. Watson, S. A. T. Newsom, J. O. Cobb, T. E. Raht, S. W. Hepstead, J. W. O'Neal, and L. R. Brumby.

Tabulation of methods employed for sizing cotton warps as reported by 16 mills at "meeting by mail" of Textile Operating Executives of Georgia

Mill Number	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No. 10	No. 11	No. 12	No. 13	No. 14	No. 15	No. 16
Type Starch & Fluidity	Corn Pearl	Corn Pearl	Corn Pearl	Corn Pearl 20	Thin boiling corn 40	Corn 40	—	Corn 60	Corn 40	Thin boiling corn 40	Converted starch 60	Corn 40	Grade E Fluidity	Corn 40	Thin boiling; Med. Fluidity	Thin boiling Corn 40
Stir and Bring to Boil	20 min.	20 to 25 min.	45 min.	30 min.	45 min.	30 min.	30 min.	35 min.	15 min.	30 min.	30 min.	25 min.	15 min.	20 min.	15 to 20 min.	30 min.
Size Cooking Temperature	212 to 220°F.	210° to 212°F.	210°F.	210°F.	210°F.	210°F.	210°F.	210°F.	230°F.	Boiling Temp.	212°F.	212°F.	210°F.	212°F.	210°F.	212°F.
Cooking Time	1 hr.	1¼ hr.	1¼ hr.	1 hr.	1 hr.	2 hr. 10 min.	1 hr.	50 min.	2 hr.	1½ hr.	1 hr.	1½ hr.	45 min.	1 hr.	1½ hr.	1 hr.
Temperature of Storage Kettle	—	—	—	190°F.	—	—	—	—	—	200°F.	—	—	—	—	—	—
Size Box Temperature	205°F.	206°F.	—	200°F.	204°F.	200°F.	196°F.	204°F.	200°F. to 212°F.	200°F.	206°F.	206°F.	210°F.	200°F.	205°F.	—
Yarn Stretch	—	1% approx.	—	—	1½ to 1¾%	—	1½ to 2%	1½ to 2%	—	—	1½% —	1½% —	—	—	—	—
Stretch at Which Strength is Affected	—	1¼%	—	—	2½%	—	Over 2%	Over 2%	—	—	2%	2¼%	—	—	—	—
Regain Slashed Warps	6½ to 7%	6½ to 8%	7 to 7½%	6½%	7½%	—	5½ to 6½%	—	10 to 12%*	8½%	6½ to 7½%	7½%	8½%	—	7%	—
Method of Controlling Regain	No positive way	Speed	—	Moist-O-Graph	Moist-O-Graph	—	Temp. controls and Speed	—	—	Hand control Speed	Moist-O-Graph	Moist-O-Graph	Moist-O-Graph	—	Moist-O-Graph	—
Method of Checking Regain	—	By feel and Lab. Tests	Outside Lab. Tests	Moist-O-Graph	Bone dry tests	—	Tests	—	—	Bone dry tests	Lab. Check	Drying Oven	Periodic test	—	8½% 85 r.h. in weave room	—
Frequency of Check	—	Frequent	Monthly	—	—	—	—	—	—	—	Periodically	Monthly	—	—	—	—
Yarn No.	14s	31s	30s to 40s	24s	2s to 13½s	—	50s	—	—	17s	12s to 14s	14s	—	—	21s to 30s	—
Ends	—	—	1800	3636	3000	—	6300	—	2498	2340	3200	3960	—	—	1700 to 3000	—
Slasher Speed Yd. Per Min.	—	—	60	55	35–40	—	22	—	35	70	20–35	35	—	—	40–55	—

*Includes weight of size added to yarn.

ELECTRONIC RELAY for Stop Motion

Installation in Van Raalte plant proves reliable under mill conditions

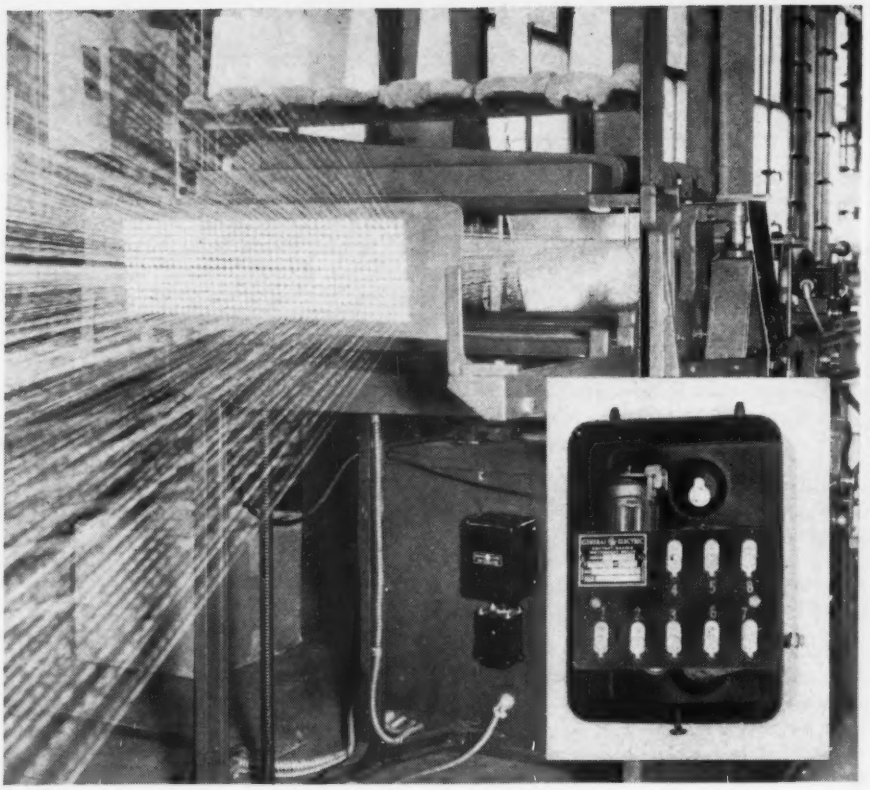


Fig. 1. Beamer at Van Raalte plant equipped with electronic relay operating in conjunction with the stop motion. Insert shows relay with cover off. (Above)

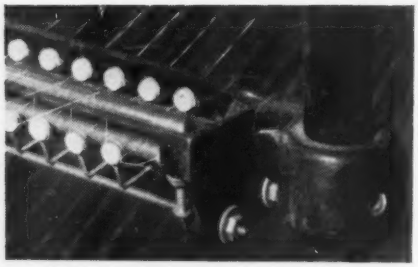


Fig. 2. Hinged eyelets or drop switches through which yarn passes. When an end breaks, a drop switch drops to metal bar and makes a contact which closes the input circuit of the electronic relay and stops the beamer. (Left)

By A. P. MANSFIELD
Industrial Engineering Division
General Electric Co.

● The stop motion has a vital function in assuring that the output of a textile machine is free of imperfections. This is true whether the machine is being used to prepare the yarns or to weave or knit the cloth. From the practical standpoint, the mechanism used to detect yarn breaks must be small and light, easily set and adjusted, and it must not interfere in any way with the normal yarn motions. At the same time, it must be safe from both the operator and fire-hazard viewpoints.

A further complication is the fact that the air in textile mills is laden with lint and dust to varying degrees, depending on local conditions. It is also highly humid. Under these conditions, the contacts on the stop motion drops may become coated, which ultimately leads to definitely unreliable operation. Obviously, therefore, a device that will contact infallibly in spite of these conditions, and at the same time introduce no new hazards, is required for complete stop motion protection. An electronic relay recently developed by General Electric Co., and designed to do just this, has been installed recently at the Van Raalte Co. plant, in Saratoga Springs, N. Y. Here the electronic relay is used in conjunction with a stop motion on a beamer. This application, showing the beamer and electronic relay, is illustrated in Fig. 1.

Just before the yarn comes to the beamer each end passes through a hinged eyelet, called a "drop switch," as shown in Fig. 2. When the yarns are wound on the beamer, they are in tension and hold the drop switches in an open position. When an end breaks, it is no longer in tension and the drop switch, its weight unsupported, drops to the metal bar. The contact made closes the input circuit of the electronic relay and stops the beamer almost instantaneously.

Before the electronic relay was installed, trouble was encountered in using a standard magnetic relay and having the yarn "stop switches" operate it directly. The difficulty resulted primarily from the dust and fly, which, in the presence of moisture, fouled the contacts.

The electronic relay employed is basically an electron tube amplifier having an input circuit and an output circuit. When the input circuit is closed by the drop switch contacts, such as when a yarn breaks, a minute current flows in the input circuits. This current, which is in the order of microamperes, is greatly amplified by the electron tube, which in turn operates an electromagnetic relay in the output circuit. The relay then opens the coil circuit of the motor switch, thus stopping the motor.

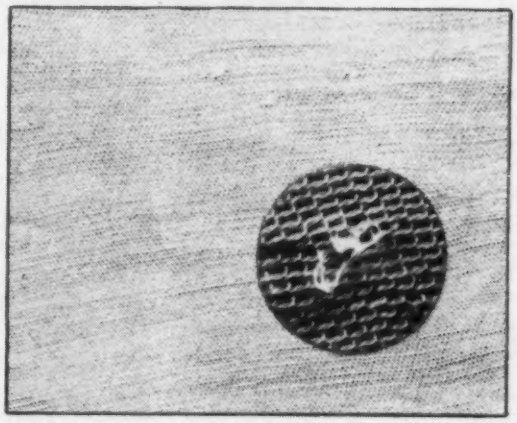
Some idea of the sensitivity of this relay and the permissible degree to which the stop motion contact may become fouled may be gained from the fact that entirely satisfactory operation is obtained with the resistance of the stop-motion contact circuit as high as 500,000 ohms.

Existing stop motion relays can be changed to use the electronic relay simply by substituting it for the magnetic relay already installed and connecting it to the coil circuit of the motor switch.

Full-Fashioned Hosiery Defects

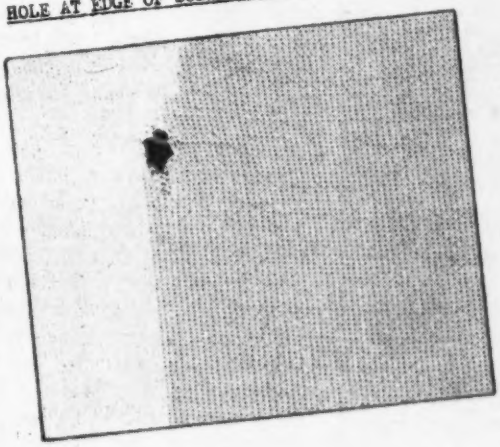
A valuable aid to the knitter of full-fashioned hosiery is a file of samples of defective fabrics. These samples can be mounted one to a page, in a loose-leaf notebook or on cards. Below each sample should be written or typed a definition of the defect, together with notes on the cause or causes of the fault and the measures to be taken to prevent or remedy them. The defects can be arranged alphabetically, or in some other logical order. After a comprehensive collection of defects has been assembled, the knitter can refer to it whenever a defect occurs, locate a similar defect, and refresh his memory quickly as to its cause and the steps to be taken to overcome it. Several common defects are illustrated on this page. Others will appear in subsequent issues of TEXTILE WORLD. Note, in the item on the "Hole at Edge of Sole Reinforcement," the term "knocking-over bit" should read "knocking-over bar."

KINKY YARN



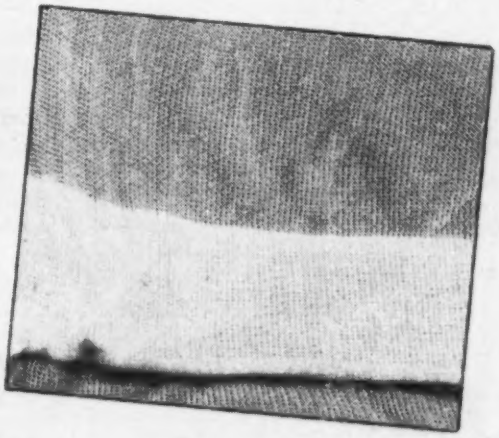
Appearance: Twisted loops or kinks of yarn protruding from body of fabric. Cause: Yarn improperly set. Remedy: Remove yarn from machine and return to throwster for re-steaming to set twist properly.

HOLE AT EDGE OF SOLE REINFORCEMENT



Appearance: Hole or holes at edge of sole reinforcement. Causes: Rough needles or sinkers; needle bar or knocking-over bar not properly adjusted; needle too low. Remedy: Replace rough needles or sinkers; adjust needle bar and knocking-over bit; raise needles.

MIXED DENIER



Appearance: Bars of thicker or thinner fabric than normal. Causes: Two or more different deniers of yarn are knitted from the same cone, due to mixing of yarn during coning. Remedy: Remove cone and handle as defective yarn.

GOOD LUBRICATION—Preventi

By R. G. SHEPHERD, *Engineer, Associated Factory Mutual Fire Insurance Cos.*

The value of proper lubrication of textile mill equipment as a means of preventing premature wear and breakdowns is well recognized. In this article, Mr. Shephard stresses the fact, which is less appreciated by most mill men, that correct lubrication is an important aid in preventing fires. Also he makes several valuable suggestions on the selection, storage, dispensing, and application of lubricants.

● Friction causes many more fires in cotton mills than is generally appreciated. In opener and picker rooms, friction causes 11% of the fires; in spinning rooms, 31%; in card rooms, 45%; and in weave rooms, 61%. To the thoughtful mill executive, this suggests that lubrication needs more attention than it is getting. Proper lubrication not only eliminates an important fire cause which threatens to interrupt production, but it also improves production and product quality. It has been estimated that 90% of the power consumed in the textile industry is used to overcome machine friction, only 10% for actual productive work. Clearly, the reduction of friction is a profitable field.

Selection of the lubricating oils and greases is strictly an engineering procedure requiring technical knowledge. Textile machinery manufacturers usually recommend suitable lubricants for the equipment they supply. However, it is beyond the scope of their responsibility to designate all qualified lubricants or to cover local conditions requiring special study by a lubrication engineer. Their specifications may be used as a standard for selecting the desirable lubricant, with such modifications as a survey might suggest.

LUBRICATING INSTRUCTION CHART for Revolving Flat Card

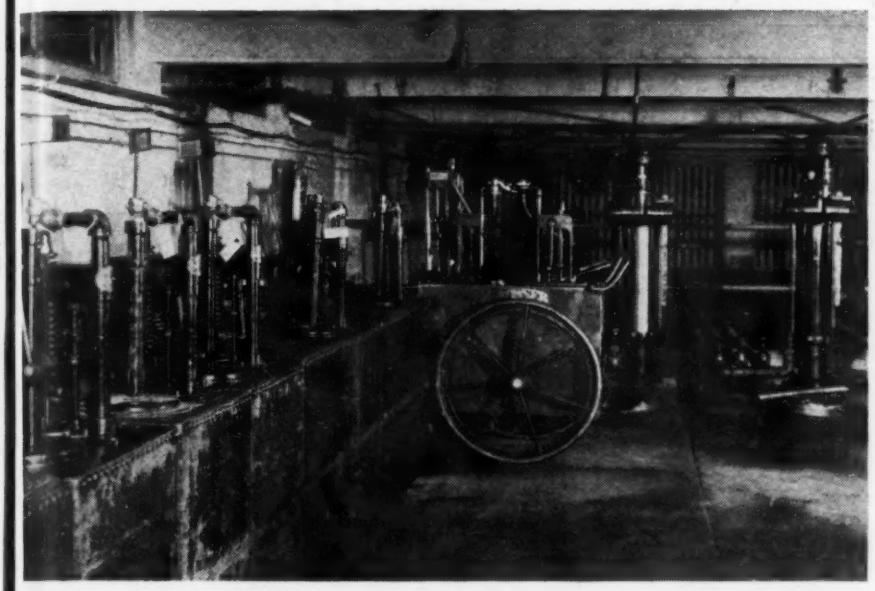
Part to be Lubricated	*Type of Bearing*	*Method of Application*	*Frequency*	*Lubricant*
Open Gears	Worm Gear	Hand applied	Weekly	#2
Presser Roll	Spur Gears	Hand applied	Daily	#2
Feeder Roll	Plain Sleeve	Hand applied	Daily	#1
Delivery Roll	Plain Sleeve	Hand applied	Daily	#1
Flat-Carrying Roll	Plain Sleeve	Hand applied	Daily	#1
Brush Roll	Plain Sleeve	Hand applied	Daily	#1
Waste Comb	Plain Sleeve	Hand applied	Daily	#1
Sprocket Shaft	Plain Sleeve	Hand applied	Daily	#1
Stripper Cylinder	Plain Sleeve	Hand applied	Daily	#1
Cylinder, Doffer and Lickerin	Plain Sleeve	Grease packed	Weekly	#3
Comb Box	Plain Sleeve	Bath Lubrication	Weekly	#1
Open Gears	Worm	Dip Lubricated	Weekly	#4

LUBRICATING ENGINEER. Every mill could well select some man from its engineering or mechanical staff to be responsible for the complete lubrication program of the mill. Such a man could soon obtain sufficient information and experience in this somewhat technical subject to well repay the time spent. The mill would benefit from a reduction in fires, from better machine operation, lowered maintenance costs, lessened power consumption, and improved quality of product.

Such a man's first duty would be to become familiar with the characteristics of lubricants, such as viscosity index, fluid friction, adhesion and cohesion, as well as the better-known constants, such as flash and fire points, gravity, viscosity, and pour point. An authoritative lubrication handbook would be a valuable help to this man. The information supplied by machine manufacturers would be another. Full advantage should be taken also of the technical service provided by the leading oil companies.

Original analyses of oils do not always foretell the behavior under working conditions. Some oils change with use and do not maintain the desired properties for the required time. Therefore, it is suggested that careful investigation be given to this possibility, especially where a change in brand is anticipated. Type samples with original analysis should be kept for reference purposes and to note any changes that

ires and Improves Production



Well-arranged central lubricating-oil storage showing "highboys" at left, a portable delivery tank in center, and bulk delivery pumps at right which draw from tanks in concrete pit beyond. Except for pipe connections at top, the spaces around the tanks in the pit are filled with sand. Note excellent cleanliness of this storage and dispensing room.

might take place through aging or use Compounded or processed oils and greases are sometimes more susceptible to oxidation or variation under use than straight refined petroleum products. Their selection should be given the closest investigation before adoption. This does not mean that processed oils should be viewed with suspicion, because the United States leads in the manufacture of lubricating greases, and it is highly desirable to use compounds for many bearings and cams.

The general theory of good lubrication is to use the lightest oil having adequate film strength to keep it in place. This keeps down the power consumption, reduces fluid or intersurface friction, and dissipates the heat at a faster rate. The oil industry in recent years has developed improved lubricants for high speeds and increased pressures by the addition of other compounds. Such oils can be used to good advantage in textile mills, especially on fast-moving bearing surfaces.

STORAGE OF LUBRICANTS. Actual supervision of lubrication begins with the storage and dispensing. In order to eliminate mistakes and mix-ups in oils, all containers should be stored in a central location adapted for the purpose, where the spillage that invariably goes with dispensing may be properly taken care of. Highboys or drum pumps are desirable equipment for a safe storage, and all the usual precautions for neatness are better maintained if responsibility is placed on the shoulders of one capable employee.

Oil containers should be distinguished by numbers in addition to brand names.

A list of machine requirements showing the grade numbers and frequency of application and inspection should be posted at the dispensing station. A corresponding instruction chart, posted in each department, should be more detailed and patterned perhaps after the style used for automobile maintenance. The accompanying lubrication chart for a revolving flat card is a typical example. Machine oilers should be given instructions in the proper use of applicators and the amount of lubricant to be used at one time. It is important that all oil leads be wiped clean both before and after application of the lubricant.

A common fault of careless oiling is the failure to observe whether the oil leads are clear, to make sure the lubricant actually reaches its objective point. This is particularly true of grease-protected oil reservoirs.

Wick feed oilers or felt pads function by capillary action. Many of the artificially thickened lubricants will quickly clog siphons of this type and permanently stop or restrict the flow of oil. Once a wick feed becomes impaired in this way, the wick must be replaced with a new one. The correct grade of lubricant will not flush or dissolve the gummy deposit in the wick or felt.

INSPECTIONS AND RECORDS. It should be the duty of a supervisor to make routine inspections and check the thoroughness of the oilers, as well as to note the condition of the machines. Records of bearing-failure causes are important in compiling a complete ristory of lubrication and bearing performance.

A periodic examination of the condition of bearings is likewise important, to see if the lubricant is lasting the required time, to discover any unusual heating, and to note if the bearings are leaking oil excessively, thus denoting abnormal wear or the application of too much lubricant. Oily conditions not only waste lubricant, but increase the possibility of quick flash fires in the vicinity by attracting lint, which in turn acts as a wick and absorbs the oil from its intended place. Most types of electrical insulation cannot withstand the action of oils, and short circuits are bound to be frequent.

If bearings become worn and leak oil, it may be a natural tendency to use heavier lubricants, but this never corrects the fault. It may reduce leakage, but it also increases power consumption and creates higher running temperatures. You can't repair a worn bearing with heavier oil.

When placing an oil contract with a supplier, consider carefully the type of technical service he can provide. He naturally will offer this service in proportion to the amount of business you give him. Remember that reputable oil firms through their service engineers can maintain a close contact with the performance of their products and suggest measures of improving the standard of your machine lubrication and maintenance.

Continuous Peroxide Bleaching

Open-width range speeds up production of Army twills and other fabrics of similar weight

An Interview with

DEHAVEN BUTTERWORTH
Vice President,
H. W. Butterworth & Sons, Inc.

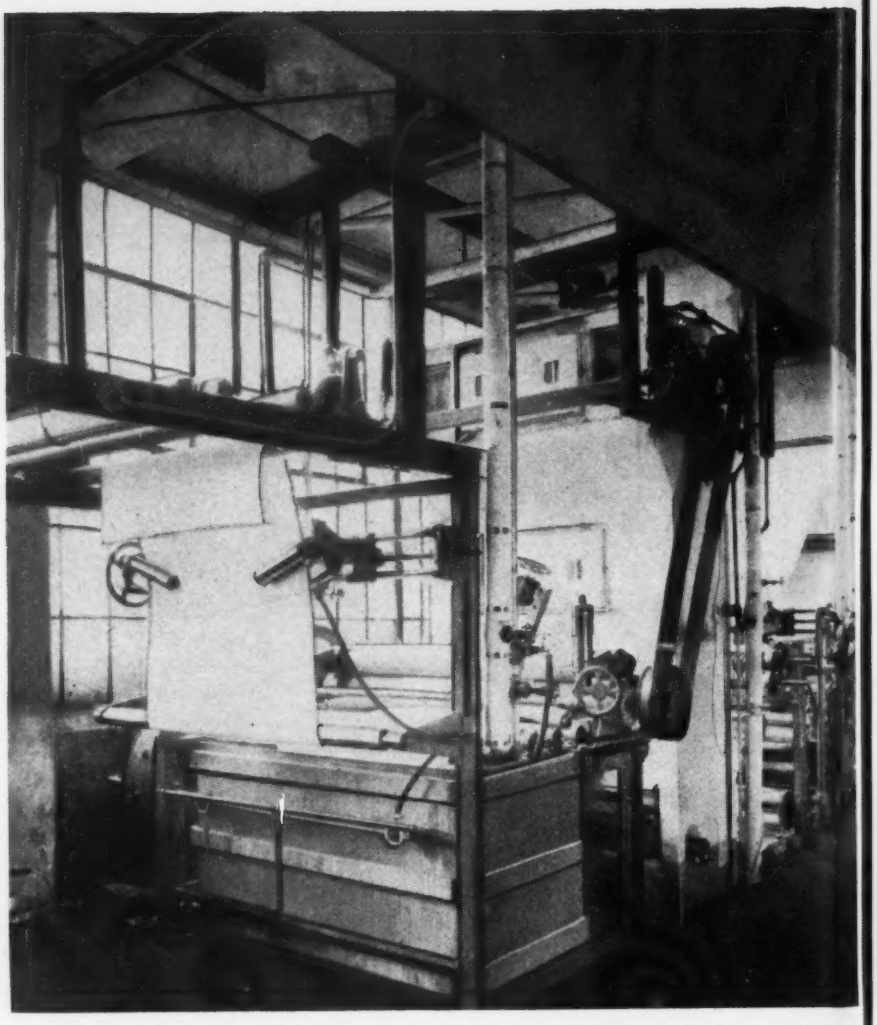


Fig. 1. Entering end of continuous open-width peroxide bleaching range showing caustic impregnating machine and first J-box.

● Peroxide bleaching of herringbone twill and other Army fabrics at a speed of 125 yd. per min. is made possible with the latest types of open-width, continuous processes developed over a period of several years by H. W. Butterworth & Sons Co. in cooperation with the manufacturers of peroxide and several of the leading cotton finishing plants. Lighter fabrics can be processed at speeds as high as 150 yd. per min. In addition to the big reduction in time as compared with kier-boiling method, continuous bleaching results in appreciable savings in steam, water, and chemicals. A further advantage is that a more uniform bleach is obtained.

In a typical open-width range, bleaching is carried out in ten steps, as follows:

1. Applying caustic in the impregnating machine
2. Squeezing to control quantity of chemicals absorbed
3. Heating by direct steam
4. Causticizing in a stainless steel J-box
5. Washing in two vertical washers
6. Applying peroxide in saturator
7. Squeezing to control quantity of chemicals absorbed
8. Heating by direct steam
9. Bleaching in a stainless steel J-box
10. Washing in two vertical washers

The entering end of a recently installed range showing the caustic impregnating machine and first J-box is illustrated in Fig. 1. The delivery end of the range showing the goods leaving the last vertical washer is illustrated in Fig. 2. A close-up of one of the vertical washers is given in Fig. 3. The complete range is approximately 80 ft. long.

An alternative method of continuous peroxide bleaching is to saturate the goods with caustic at open width, enter them into the first J-box in rope form, open the goods through a scutcher and then through a 3-bar expander before they pass through the vertical washers, saturate with peroxide at open width, enter goods into second J-box in rope form, and again open the goods through a scutcher and then through a 3-bar expander before they are passed through the final washers.

At present a 10-roll vertical washer is being developed which will take the place of two 6-roll washers. This will result in a still further saving in floor space and will simplify the range.

Speeds of the various units in the range are synchronized, and temperature and concentration of the peroxide solution are automatically controlled. J-boxes are constructed of stainless steel to resist corrosion and prevent rust stains.

STEP-BY-STEP PROGRESS. It is interesting to note how the latest Butterworth continuous range has evolved from the earlier types of continuous boil-off machines or open kiers brought out approximately 20 years ago. Installations of these machines made in 1924 and 1926 proved that continuous boiling had great possibilities, despite the limitations of wrought-iron J-boxes. In 1927 Butterworth built its first continuous boil-off machine with Monel

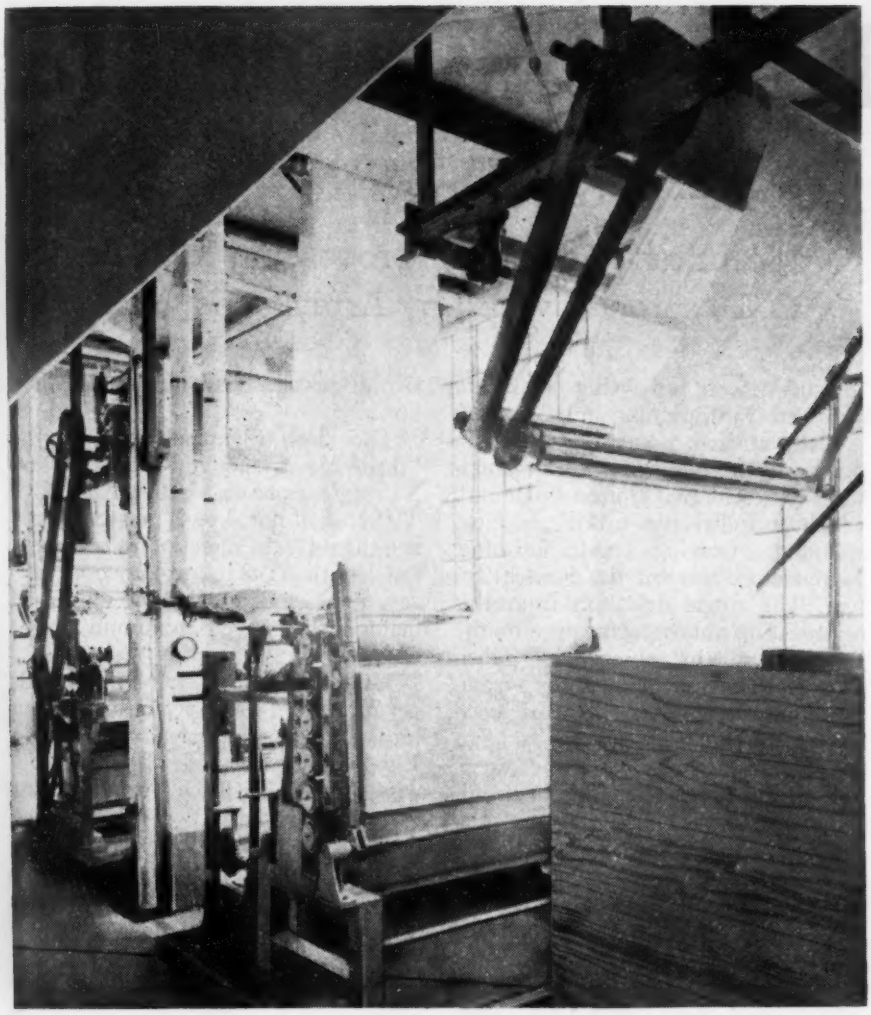


Fig. 2. Delivery end of range showing the goods leaving the last vertical washer after bleaching has been completed.

metal J-boxes; a feature of this machine was a traveling pot-eye which still is employed in conjunction with J-boxes, wherever goods are roped. Three years later a trial installation was made of a continuous open-width peroxide bleaching range. This consisted of a 4-compartment, open-width kier for the caustic boil-off, a small steaming box for removing part of the residual caustic, and a 2-compartment kier for peroxide bleaching.

The experience gained in the operation of this experimental unit for six months on 80x80 cotton fabrics, led to the development of the successful continuous peroxide bleaching ranges of today. It was found, for example, that better causticizing and washing were necessary, and that more complete exhaustion of the peroxide bath was needed to reduce chemical costs. In the course of these experimental runs it was discovered that if cotton fabrics are causticized, impregnated with peroxide solution, and then exposed to live steam, they become white in a few seconds. This discovery led eventually to the development of the steaming equipment employed in present-day continuous ranges.

Another important innovation which contributed to the success of continuous, open-width peroxide bleaching was the vertical washer mentioned above and shown in Fig. 3. A feature of the vertical washer is the fly rolls, which allow both sides of the fabric to be sprayed with water before the goods pass through each nip. Incidentally, vertical washers of this type are employed not only in continuous peroxide bleaching, but in other processes where thorough washing is essential.

This step-by-step progress made during the last 20 years has culminated in the development of the continuous peroxide bleaching ranges which are speeding up the production of fabrics for our Armed forces. Without doubt, further refinements will be made in the immediate postwar period. However, the major difficulties have been overcome, and the long-sought goal of continuous bleaching of textiles has at last been achieved.

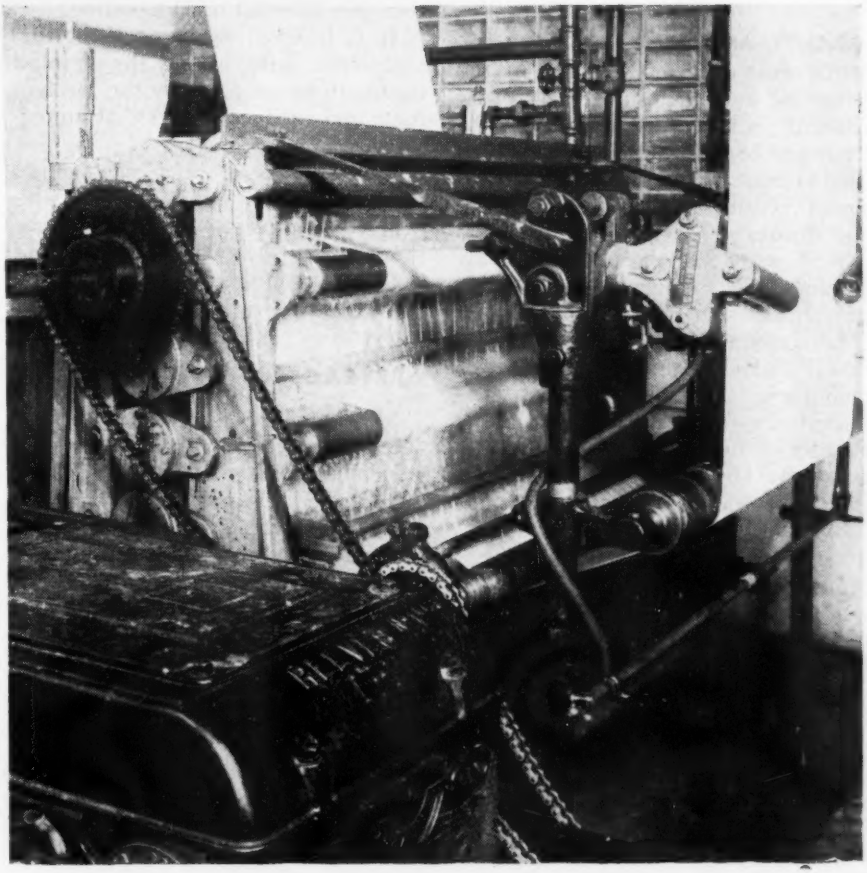


Fig. 3. One of the four vertical washers through which the goods pass after causticizing and after bleaching.

MANUAL OF MILITARY FABRICS

To meet the need by textile mills for complete data on gray constructions, yarn organizations, weaving and finishing of fabrics required in large quantities for military use, TEXTILE WORLD, with the approval of officers of the Quartermaster Corps, began publication in the February issue of a Manual of Military Fabrics. The mill organizations and other manufacturing and processing data published previously were furnished through the cooperation of textile mills which are producing these fabrics under Government contract. Data for this mill lay-out was taken from a survey made by Philadelphia Quartermaster Depot of 43 mills manufacturing 18-oz. serge.

Parts previously published are as follows: Part I, 5-oz. Poplin Type II, P.Q.D. No. 1, February; Part II, 6-oz. Cotton Twill, Army Specification 6-311, March; Part III, 8.2-oz. Cotton Twill, Type I, Army Specification, 6-201B, April; Part IV, 8-2-oz. Cotton Twill, Type II, Army Specification 6-201-B, May; Part V, 8.5-oz. Herringbone Twill, Army Specification 6-261, June; Part VI, 8.2-oz. Cotton Twill, Type IV, Army Specification 6-201B, July; Part VII, 32-oz. Melton, Army Specification No. 8-53-A, August; Part VIII, 9-oz. Sateen, Army Specification, P.Q.D. 245D, September; Part IX, No. 6 Numbered Duck-Type I, Army Specification, J.Q.D. No. 208C, October; Part X, Dyed Numbered Duck-Type II, Army Specification, J.Q.D. Nos. 226B and 242, November.

Part XI—18-oz. Serge

Manufacturing and processing details for O. D. serge covered by Army Spec. No. 8-94A

QUALITY AND APPEARANCE of uniforms worn by the personnel of the Army are a distinguishing mark of an efficient military organization. Deliveries of 18-oz. O. D. serge, the fabric used in uniforms of enlisted men, have varied considerably in shade, finish, and shrinkage.

A study of manufacturing methods employed in producing 18-oz. serge was entered into by the Philadelphia Quartermaster Depot with the thought that it would reveal basic differences in manufacture of this fabric as conducted in mills of various contractors. Results of this study were published as a survey by the Depot. It was felt that a survey of this nature would enable worsted manufacturers producing this cloth to compare their procedures with other manufacturers.

Data for this section of the Manual of Military Fabrics were obtained from this survey which covered 43 mills, varying in size and type. Of these mills, ten handled the product from raw stock to the finished cloth. Twelve plants processed from top dyeing or spinning through spinning, and thirteen mills only wove and finished the cloth. Six of those mills entering into the survey were top-dyeing plants and two were yarn-spinning mills.

Data utilized from this survey in preparing the following mill organizations represent that from a single mill which included top making, dyeing, spinning, weaving, and finishing. Manufacture was on the French system. The single deviation from this organization was that data given on the Bradford system which were taken from another mill. Hence, the organization, as given, represents a balanced layout; the Bradford system data has no relationship to it, with the exception that it is representative of a mill layout for those operating on the Bradford system.

The layout given is not intended to represent the best one found in the survey, but simply one in which all detailed information is complete. Variations from the layout are given in note form so as to indicate the range found in different mills reporting.

It is believed by some authorities that those mills having the simplest organization are generally the low-cost units and produce fabrics that are entirely satisfactory.

Following is a brief abstract of Specification No. 8-94A, together with detailed information—not given in the specification—covering the scouring of the wools used in this fabric, its manufacture, and the finishing processes involved.

ABSTRACT OF SPECIFICATION

Material: The wool used shall be fleece and/or pulled wool not lower in grade than 64s.

Yarn: The wool shall be well combed, drawn, evenly spun on the worsted system and twisted into a two-ply yarn for both warp and filling. Yarn shall have sufficient twist to insure a character of cloth as shown to be the standard sample.

Color: The color shall be olive drab produced by blending shades of olive with white wool. Color shall show good fastness to weather when exposed for 10, 20, and 30 days.

Physical Requirements: Unless otherwise specified, the width, exclusive of selvage, shall not be less than 56 in.

The cloth when subjected to the "shrinkage in sponging" test, section XV of Federal Specification No. CCC-T-191, shall not show a greater shrinkage than 4% in direction of warp and not less than 56 in., exclusive of selvage, in direction of filling. Finished material shall have a minimum weight of 18 oz. per linear yard.

Minimum thread count is 68 ends per in. and 54 picks per in. Minimum breaking strength, 1x1x3 grab test, is 120 lb. warpwise and 110 lb. fillingwise. Weave shall be a four-harness twill to the right, two up and two down. The cloth shall be scoured and lightly fulled. The face shall be clear, closely sheared, well pressed and have a firm feel or handle. Unless otherwise specified, cloth shall be in one continuous piece of not less than 50 yd.

Tests

The methods of testing described in Federal Specification No. CCC-T-191, wherever applicable, shall be followed.

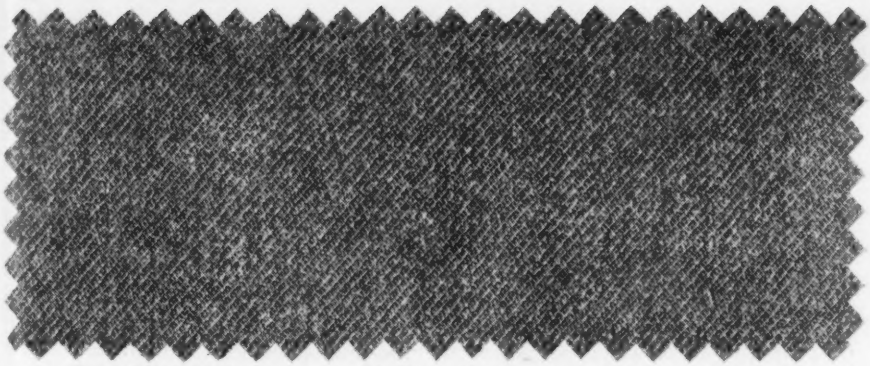
Manufacturing Details

Top manufacture—Trapping of the fleeces at sorting and opening was used by 5 of the 10 mills reporting. The other 5 mills sorted the wool to obtain a more uniform blend.

Scouring, with the exception of one mill which used the naphtha process, consisted of dusting and then scouring. None of the mills reporting used an extremely high drying temperature which has a harshening effect on the fiber.

In carding the main consideration was to eliminate as many nips as possible. When excessively nippy sliver was produced in carding, increased percentage of noils was found in combing in an effort to comb out the nips. Some mills used a large number of card doublings in the sliver of each ball to obtain greater blending action.

First combing, in the 10 mills reporting, was conducted on the Noble comb in every instance. Fine combs should be used to obtain most effective combing action. Use of medium



Standard uniform material for the Army is 18-oz. O. D. serge.

combs, intended for a lower grade stock than that being processed, allows a large number of nips to pass.

Most mills gilled the top twice after combing and before dyeing. Some mills gave a third gilling and then wound the top on pressure dyeing spools.

Dyeing Methods

Top dyeing—time spent in dyeing ranged from 1 hr. 10 min., to 4 hr. 15 min., because of the use of different methods. However, it is believed that the shortest dyeing time with which even penetration is obtained is most satisfactory. Prolonged boiling of wool greatly affects its properties in subsequent manufacturing operations.

Dye kettle capacities ranged from 50 lb. to 1,248 lb., and complete lots of primary shades ranged from 1,500 lb. to 27,000 lb. The top chrome process was used by 16 of the 22 mills, whereas the others used the metachrome process.

Method 4. (Top Chrome)
Shade—dark
Lb. per kettle .....160 lb.
Lb. per lot .....6,500 lb.
1. Starting temp. .....100° F.
2. Time to bring to boil .....1 hr.
3. Boil with dye .....2 hr. 30 min.
4. Boil with acid and chrome 45 min.
5. Rinse .....10 min.

Spinning Details

Yarn manufacture—Following top dyeing, those mills that used pressure spools for top dyeing used another gilling operation previous to backwashing so as to unwind the top from spools.

Mills recombed the white top used in blending before final gilling so as to eliminate as many white nips as possible. Otherwise, white nips will appear in the finished fabric. The mill described in the French System organization also recombed their dyed top, but this practice is the exception.

Practically all mills, in the final gilling operations, used intersecting gills.

A practice used by one mill in spinning, which reduced greatly the amount of burling required in the woven fabric, consisted of doubling and coning the single yarn before twisting. In reality, all knots were in the single yarn only. This practice eliminated large warp knots and the small filling knots disappeared in finishing.

Finishing Details

1. Full—Tack cloth face inside, two pieces per mill, full to 57 in. Width before fulling was 63 in. Head shrinkage is 11.75%. Total fulling time, 1 hr. 10 min., heat of fulling mill is 100° F. Use light trap throughout fulling; all doors open. Use 36 qt. of soap per piece of Fulling Formula No. 2W.
2. Rinse—20 min.
3. Scour—20 min., use soap in Fulling Formula No. 2W. Temp. of bath, 100° F. Width after scouring, 56 in.; 10-string washer used.
4. Rinse—Rinse in washer for 2 hr. 30 min.
5. Vacuum Extract.
6. Dry—Dry at 180° for 55 min. Speed of dryer is 7 yd. per min., 386 yd. in dryer. Width after drying is 58.5 in. (See notes below about drying.)
7. Shear—Two cylinders per shear. 5 runs on face, 3 runs on back. Cloth is reversed.
8. Press—Light press with light cloth tension. Steam at 65 lb. per sq. in.; cloth speed, 15 yd. per min.
9. Decate—Steam 1 min., pump 1 min., fully decate cloth.

Notes—Some mills, previous to fulling, despeck, brush, sand, or shear the cloth. Frequently a mill will use one or a combination of these processes to improve the appearance of the cloth. However, caution must be taken in these processes, as such action frequently weakens the yarn. Only 10 of the other 33 mills followed the practice of the mill in the organization in not attempting nip or speck removal previous to fulling.

During fulling, 21 of the other 33 mills tacked the cloth with the face inside. Amount of alkali in the fulling soap varied from no alkali in one mill to 6 oz.; 26 of the mills used from 2 to 4 oz. of alkali per gal. of water. Ratio of alkali to soap ranged from 0.92 to 4.37. A ratio varying from 1.33 to 2.5 was used by 26 mills. Mills used from 18 qt. to 48 qt. of soap per piece. Temperature ranges in fulling varied from 100° F. to 125° F. A light trap for part of the fulling time was used by 10 mills, whereas a light trap for the entire time was used by 14 mills. A heavy trap was used by 3 mills, and no trap by 7 mills; 11 mills had top doors open during fulling and another 11 mills had all doors open. Time of fulling ranged from 45 min. to 2 hr. 45 min. Most mills, however, fulled from 1 hr. 15 min. to 1 hr. 45 min. Loom width of cloth ranged from 61 in. to 66.5 in.; width after fulling varied from 54 in. to 59 in. Most mills full within a range of from 57 in. to 58 in. Head shrinkages ranged from 3.75% to 15%; over half the mills ran between 7% to 10%.

The same soap solution was used in both fulling and in scouring by most mills. Majority of the mills used scouring baths varying from 100° F. to 120° F. The fulling soap was either rinsed or partially rinsed from the cloth after fulling by 19 mills. Scouring with the fulling soap for a first scour and then adding more soap for a second scour was the procedure generally followed by the other mills. Most mills scoured from 20 to 30 min.

Rinsing periods ranged from 20 min. to 3 hr., 15 min. following scouring.

A continuous-type washer was used by 3 mills with an approximate speed of 35 yd. per min. Widths after scouring ranged from 54 in. to 58 in. Average range for most mills was between 56 in. and 57 in.

Vacuum extraction was used by 31 of the 34 mills reporting, the other 3 mills using a centrifuge.

The drying organization of the mill described indicated an unusual drying time of 55 min. The next longest drying period was about 15½ min. Types of dryers and the amount of water removed during extraction are factors which must be considered in setting the drying time. Drying temperature ranged from 145° F. to 240° F. Widths of dried cloth ranged from 57.5 in. to 61 in.; however the middle range varied from 58 in. to 59.5 in.

In dry finishing the most common shear was one with two or three cylinders. Some, however, had five, six, or even seven cylinders. Treatment given the cloth in wet finishing determines, to a limited extent, the amount of shearing required. Number of shearing cuts; that is, by individual cylinders run varied from 2 to 14 on the face of the fabric and from 1 to 6 on the back. Average for mills on face runs varied

from 4 to 8 cuts and on the back from 2 to 4 cuts. Twenty-three of the mills reversed the cloth in shearing so as to shear in both directions.

A medium press was given to the cloth by 23 of the mills, 5 gave it a light press, and 2 a hard press; 3 mills did not press. No tension was applied by 10 mills, 20 mills used light tension. Steam pressure ranged from 20 to 110 lb. per sq. in. and speed from 9 to 35 yd. per min.

Fully decating the cloth was followed by 11 mills, 10 semi-decated it, and 13 mills did not decate. Steaming varied from 1 min. to 4 min. in most instances, with 15 of the 21 mills using a 2 to 3 min. steaming. One mill did not pump; another mill pumped 20 min. Average was between 1 to 5 min. of pumping.

Conditioning the cloth was resorted to by 22 mills; the other 12 mills had no conditioning equipment and depended on natural regain. Moisture saturated air was used by 13 mills for conditioning and water-spray was used by 5 others.

Shrinkage—Excessive shrinkage in sponging must be guarded against. Allowable sponging shrinkage permitted in specifications is 4%, hence the pull-out in finishing must be kept below this percentage.

Average shrinkages found in the fabrics produced by 34 mills were as follows and represent what may be considered as the most desirable practice by Philadelphia QM. Head shrinkage from trapping is 9%. Average pull-out is 3.7%, and net final shrinkage is 5.3%. For an added factor of safety, the pull-out may be limited to not over 3% and would thus permit 52 picks per in. to be woven.

MILL ORGANIZATION FOR 18-OZ. SERGE

Mixing Organization No. 1 W

Lb. wool blended in storage bins—40,000 lb.

Note: 5 out of 10 mills used 40,000 lb., others range from 10,000 to 50,000 lb.

Scouring Organization No. 1 W

Temperature of Scouring liquid
First bowl 120° F.
Second bowl 115° F.
Third bowl 110° F.
Fourth bowl 105° F.
Type of soap—red oil
Type of alkali—soda ash
Method of soaping—drip

Note: 5 out of 10 mills have 120° F. temp. of liquid for first bowl, others ranged from 110° to 130° F. In the second bowl, 3 mills held a temperature of 115° F., others ranged from 110° to 125° F. The third bowl was held at 110° F. by 5 mills, whereas others varied from 110° to 130° F. The fourth bowl was held at 105° F. by 2 mills, whereas others varied from 100° F. to 130° F. Two mills used a fifth scouring bowl with a 110° F. and a 120° F. temp. Seven mills out of 10 used red oil soap. Soda ash was used by 8 mills. Five mills used the drip method of soaping, whereas the other 5 mills used the bucket method.

Drying Organization No. 1 W

Raw Stock dryer temp.—220° F.

Note: Three mills used a temperature of about 220° F.; the other 7 ranged from 130° F. to 200° F.

Carding Organization No. 2 W

7 and 8 doublings per ball

Note: Of the other 9 mills, doublings ranged from 1 to 4, three mills using 2 doublings.

Gilling Organization No. 1 W

First gilling
5 doublings
4 draft
Second gilling
5 doublings
4.75 draft

Note: Doublings in first gilling ranged from 3 to 15 in the other 9 mills and drafts from 3 to 6.8. In second gilling doublings ranged from 4 to 17 and drafts from 4.5 to 6. Two mills did not give stock a second gilling.

Combing Organization No. 1 W

2 draft

Note: Draft ranges for the other 9 mills varied from 1.5 to 2.75.

Gilling Organization No. 2 W

First Finisher
20 doublings
5 draft
Second Finisher
4 doublings
5.5 draft

Note: First finisher gilling—In the other 7 mills doublings range from 15 to 28 and drafts from 4.5 to 6.75. Second finisher gilling—Only 5 of the other mills used this process, with doublings ranging from 4 to 7 and drafts from 5 to 6.5. Four mills gilled for winding to pressure dyeing spools; in these, doublings ranged from 6 to 12 and drafts from 5 to 7.5. Three mills only used a first finisher gilling; two mills had first and second finisher gilling; three mills had three gilling operations.

Dye Formula No. 4 W

No. 1 Primary Shade Yellow
Chrome Flavine A (C.I. 219)....0.433%
Chrome Yellow 2G (C.I. 36)....0.433%
Chromal Brown AEB (Pr. 14)...0.200%
Alizarine Blue Black B (C.I. 1085).....0.170%
Chromate Dark Brown PWS....0.175%

Dye Formula No. 5 W

No. 2 Primary Shade Brown
Chrome Flavine A (C.I. 219)...0.433%
Chrome Yellow 2G (C.I. 36)....0.433%
Alizarine Blue Black B (C.I. 1085).....0.330%
Chromate Brown AEB (Pr. 14)..0.878%
Chromate Dark Brown PWS....0.675%

Dye Formula No. 6 W

No. 3 Primary Shade Green
Chrome Flavine A (C.I. 219)....0.33%
Chrome Yellow G.....0.33%
Alizarine Blue Black B (C.I. 1085).....0.65%
Chromate Brown AEB (Pr. 14)...0.15%
Chromate Dark Brown PWS.....0.15%

Blending Organization No. 2 W

Dark O. D. Shade
No. 1 Primary shade.....45.0%
No. 2 Primary shade.....27.5%
No. 3 Primary shade..... 5.0%
White 22.5%

Gilling Organization No. 2 W

Backwasher
6 doublings
5 draft

Note: Of the 14 other mills, 2 used 6 doublings and 3 used a 5 draft. Doublings ranged from 2 to 20 and drafts from 3.5 to 6. Two mills gilled in unwinding from dyeing spools previous to backwashing, whereas one mill only gilled in unwinding from dyeing spools and eliminated backwashing.

Recombing Organization No. 1 W

First Gilling—white and colored
11 doublings
5.5 draft
Second Gilling
5 doublings
5.5 draft

Note: Of 12 mills, only 7 used a first gilling; 3 mills used a first and second gilling; one mill 3 gilling operations; one other mill using 5 processes of gilling.

Gilling Organization No. 3 W

French System

First Gilling
5 doublings
5.5 draft
Second Gilling
4 doublings
5 draft
Third Gilling
6 doublings
6 draft
Fourth Gilling
5 doublings
5.6 draft
Fifth Gilling
3 doublings
5.6 draft

(Continued on next page)

MILL ORGANIZATION FOR 18-OZ. SERGE (Continued)

Gilling Organization No. 4 W

Bradford System

First Gilling
4 doublings
6 draft
Second Gilling
16 doublings
6 draft
Third Gilling
5 doublings
5.25 draft
2 and 4 Spindle Gill
4 doublings
5.25 draft

Note: Of 15 mills, 4 used first and second gilling and a 2 and 4 spindle gilling. Two mills used only three gilling operations and one other mill followed the operations outlined in the above organization. One mill used 4 gilling operations, whereas another used this same number but added a 2 and 4 spindle gilling. One mill used 6 gilling operations plus a 2 and 4 spindle gilling.

Drawing Organization No. 1 W

French System

First Reducer
2 doublings
4.2 draft
Second Reducer
1 doublings
3.9 draft
Intermediate Roving
3 doublings
5 draft
No. 3 Fine Roving
3 doublings
4.8 draft
Finisher Roving
3 doublings
4.5 draft

Note: Of the 3 other mills using the French System, 3 used the drawing frame, 2 used the first reducer, 2 employed the second reducer, only one used the slubber, but all 3 used the intermediate roving frame. One mill used a No. 2 intermediate roving process, a No. 1 fine roving and a No. 2 fine roving operation. Two mills used a No. 3 fine roving and all 3 mills employed a finisher roving process.

Drawing Organization No. 2 W

Bradford System

4-Spindle
4 doublings
5.25 draft
6-Spindle
4 doublings
5.25 draft
10-Spindle
4 doublings
5.25 draft
12-Spindle
3 doublings
5.25 draft
Reducer
2 doublings
5.8 draft
Roving
1 doublings
6 draft

Note: Of the 19 other mills, 2 mills used a 2-spindle gill, 11 mills a 4-spindle gill, 14 mills a 6-spindle gill, 12 mills a 8-spindle gill, 11 mills use a 10-spindle gill, 15 mills a 12-spindle gill. Reducers were used by all except one mill, slubbers by 4 mills and roving frames by all except one mill.

Spinning Organization No. 3 W

French System

Warp 1/24s
Type of machine—Mule
2 doublings
8 draft
13 t.p.i.
Z twist

Note: Of other 3 mills on French system, 2 used mules and 1 used cap spinning. Doublings ranged from 1 to 2 and drafts from 7 to 10. Twist ranged from 11 to 11.3.

Spinning Organization No. 4 W

French System

Filling 1/24s

Same as Organization No. 3 W.

Twisting Organization No. 1 W

French System

Warp 2/24s
Yarns 1/24s
13 t.p.i.
S twist

Note: Twist ranged from 9.5 to 14.5 t.p.i., two other mills used 13 t.p.i.

Twisting Organization No. 2 W

French System

Filling 2/24s

Same as Twisting Organization No. 1 W.

Spinning Organization No. 5 W

Bradford System

Warp 1/24.5s
Type of machine—Cap
6 draft
12 t.p.i.
Z twist

Note: In the 19 other mills spinning on the Bradford System, drafts ranged from 5.25 to 14 and twist in single yarn from 9 to 14 t.p.i.

Spinning Organization No. 6 W

Bradford System

Filling 1/25s

Same as Organization No. 5 W.

Twisting Organization No. 3 W

Bradford System

Warp 2/24.5s
Yarns 1/25s
10.5 t.p.i.
S twist

Note: Twist ranged from 9.5 to 15 t.p.i.

Twisting Organization No. 4 W

Bradford System

Filling 2/24.5s

Same as Organization No. 3 W.

Warp Preparation Organization No. 2 W

No warp sizing used
3,920 ends in warp
71½ yd. per cut dressed
7 cuts per beam
Warp width on beam—75 in.
14½ reed
4 ends per dent
58 ends per in. in reed
Warp width in reed—67.6 in.

Note: Of the other 33 mills, 27 followed the above practice of not sizing the warp. Ends per warp varied from 3,920 to 3,986. Yards per cut dressed varied from 71½ yd. to 86 yd., and cuts per beam from 7 to 11. One mill, however, ran from 12 to 17 cuts per beam. Width of warp on beam ranged from 68.5 in. to 72 in. Reeds employed varied from 13 to 14¾. One mill used a 9¾ reed and 6 ends per dent and another a 11¼ reed and 5 ends per dent, but all others reeded 4 ends per dent. Ends per in. ranged from 56 to 59. Width of warp varied from 66.5 in. to 71.6 in.

Weaving Organization No. 2 W

Number of shuttles—3
Type of temple—double
54 picks per in.
Warp width in reed—67.6 in.
Cloth width from loom—63.5 in.
18.55 oz. per yd. from loom
64.5 yd. per piece

Note: Out of the 33 other mills reporting, 16 used the same number of shuttles as above. Only one mill was weaving with 1 and 2 shuttles, 10 mills with 2 shuttles, 5 mills with 2 and 3 shuttles, and one mill with 2 and 4 shuttles. Twenty-seven mills of the other 33 used double temples, whereas the other used a single or double and single types of temples. Picks per inch were the same in 14 other mills, and in those other mills the pickage ranged from 52 to 55. Width of reed varied from 67 in. to 71.6 in., and cloth weight at loom varied from 18 oz. per yd. to 19.8 oz. per yd. Yardage of piece removed from loom ranged from 64 yd. to 80 yd.; however, one mill used a piece length of 92 yd.

Fulling Formula No. 2 W

Soap Chips.....5 oz.
Alkali .....2 oz.
Water to make.....1 gal.

Note: Formulas of the other 33 mills varied with ratio of ounces alkali to ounces of soap ranging from 0.92 to 4.37. Two extremes were found with one mill using a ratio of 6, and another used 11 oz. of soap and no alkali.

Better Quill-Room Management

Tray tickets and record cards help maintain production control; quill defects and their causes are listed

By ARTHUR C. WAYMAN

In the October issue of TEXTILE WORLD, the author described the way in which careful planning and strict control of details contribute to efficient quill-room operation. In this concluding article on quill-room management he discusses forms for recording quiller production and offers a table showing fabric defects that originate in the quill room.

● Strict control of production and full utilization of records of individual productive accomplishment of each operative are essential if a quilling room is to operate at its maximum efficiency. Such records are necessary to enable the superintendent to keep production of the room balanced with the quill requirements of the weave shed. Also, these records form the basis of payroll records for the accounting department when quillers work on a piece-rate basis.

PRODUCTION CONTROL. Each tray, or board, of filling quills should be identified with a tag showing the operator's number, machine number, lot number, and yarn description. Some mills use different colored tags to identify shifts; whereas others use different ranges of numbers for the operators on each shift.

A type of tray ticket frequenty used by mills that employ a punch system of production control is shown in Fig. 1. Every time a full tray of filling quills is delivered by the quiller to the inspector a hole is punched in the upper left-hand corner of the attached ticket marked "credited." At the same time, the tray is also recorded by punching the production record card, as illustrated in Fig. 2. Various shifts may be identified by means of different colored tickets. For instance, white may signify the first shift; pink may indicate the second shift; and blue or green, the third shift.

The record card, Fig. 2, contains three columns for each day. This provision is made for mills which may carry more than one type of filling tray; as an example, trays are available with 50, 75, and 100 quill capacities. Assume, for example, that on Monday the following quills were delivered:

7 trays of 50 quills = 350 quills
4 trays of 75 quills = 300 quills
4 trays of 100 quills = 400 quills

Total for day 1,050 quills

This information is recorded by punching on the card shown in Fig. 2. At the end of the week the card is sent to the accounting department for use in making up the payroll when operatives are on a piece-work basis.

On a piece-work basis different rates apply for different yarns; hence each construction calls for a separate record card. One operator may have three or more cards. However, to simplify payroll records and to attain maximum efficiency, it is advisable to limit one person to as few lots as possible. Should there be need for several small lots of odd yarns, it is much better to have one quiller run these yarns on an hourly basis, rather than to complicate the work of piece-work operators.

Credited_____ Inspected_____

Operator No._____

YARN: _____

Lot No._____

Fig. 1. Tray ticket suitable for attaching to filled quill trays.

INSPECTION. The tray ticket, Fig. 1, carries the heading "Inspected" in the upper right-hand corner. A hole is punched here by the inspector after he has checked over the board for defective quills. In this task it is recommended that each inspector have a punch which makes a distinctive mark that may be easily identified if it is necessary to check on his work.

If a tray of yarn is quilled late on the first shift, it should have the regular white quiller ticket that is attached to all first-shift quills. As it is too late for the first-shift inspector to check this tray, the second-shift inspector will do the checking. Therefore, the second-shift inspector should have a punch cutting a No. 2 in the ticket. The first-shift inspector will punch No. 1 on any tickets attached to trays he inspects and the third-shift inspector will have a No. 3 punch for the same purpose.

Identification of quilling operatives is accomplished by assigning numbers to each hand. A system frequently used is to have numbers running from 101 to 199 for the first shift, 201 to 299 for the second shift, and 301 to 399 for the third shift, or a similar range of figures. The identity of each operative, together with his shift is established quickly; and complaints by

the weaving department can be quickly traced.

As a precaution against claims by operators for not being credited with every tray which was turned out, they are informed daily of their credited production. A bulletin board may be used for posting each operator's production for the previous day; but, better still, a slip of paper may be handed to each operative, at the close of the shift, into which holes equal in number to the trays submitted are punched.

Where operators are paid by tray weight, a weekly weighing of 10 trays of each type of filling should be made in order to assure that production figures correspond with payroll figures. When rates are based upon number of quills, this precaution is not necessary. However, it is a good policy to be on the alert and make this check to be certain that quills are filled to their prescribed capacity.

QUILLING HINTS. Whenever overtinting is necessary, the operator should either be compensated accordingly or permitted to run a proportionately lower number of quilling spindles.

Allowances must also be made when an operative runs skinners from the warping department or a weak yarn where knot-tying is permitted.

Operators should start from the left side of a machine at doffing and start each spindle before doffing the next. After all spindles on a machine are in operation, the yarn should be overtinted. This prevents the danger of an operator tinting yarn on an adjacent machine in his haste to doff, thus starting a yarn mixture should the other machine be running material of a different description.

Quiller operators should have ample supplies of empty quills, yarn, and filling trays at all times. Operatives should not be forced to leave their machines for lack of such supplies. The helper who supplies such equipment should also remove the full trays.

Filling trays are subject to much abuse. Pins are frequently bent and in some cases even broken. Trays should be overhauled regularly. During this period they may also be cleaned. As a rule, much waste collects around the pins.

When supplies are required or a fixer is needed, a light-signal switch should be near the operator. Most mills have a light switch located within easy reach of at least four operators. A system of colors frequently used is to have a red light to indicate that a fixer or mechanic is needed, a blue light indicates that the supply boy is wanted, and a white light signifies that the overseers attention is required.

QUILLING IMPERFECTIONS. The accompanying table indicates various filling defects that appear in fabrics at the loom. In most instances the fabric defects mentioned are traced to the quill room where imperfections in the yarn during quilling are responsible. This table should prove to be helpful in maintaining quality operation during quilling, as it points out various factors that may cause fabric imperfections.

Operator No._____ ○ Week ending_____

Yarn Denier_____

QUILLER'S PRODUCTION RECORD CARD

MONDAY			TUESDAY			WEDNESDAY			THURSDAY			FRIDAY			SATURDAY		
Type Tray			Type Tray			Type Tray			Type Tray			Type Tray			Type Tray		
50	75	100	50	75	100	50	75	100	50	75	100	50	75	100	50	75	100

Summary_____Trays @_____Quills=_____Quills=_____lbs.

_____Trays @_____Quills=_____Quills=_____lbs.

_____Trays @_____Quills=_____Quills=_____lbs.

_____Quills=_____lbs.

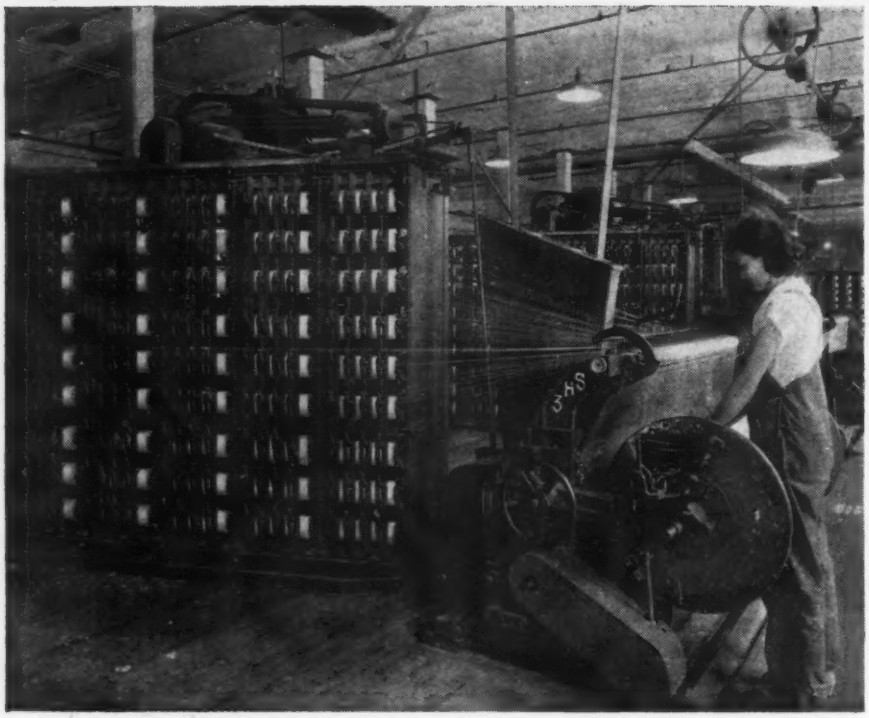
Fig. 2. Suggested record card for use by inspector in recording number and size of trays quilled by an operative.

Table of Fabric Imperfections Traceable to Quilling

Fabric Defect	Cause in Quilling
Broken picks and stripbacks	Bad bunches Short bunches Traverse wheel set too close Rough bunch-builder guide Porcelain guides cut Traverse wheel spring too tight Excessive thread tension Rough and damaged quills Damaged traverse wheel Careless handling of bobbins and quills
Filling bands	Yarn mixtures Tensions irregular Steaming periods or temperatures not held uniform
Pilling lumps	Excessive steaming after quilling Yarn package too large Yarn tension too light Cop former not set correctly Stroke too short Traverse guide jumping Slipping clutch causing irregular speed
Loopy and loose picks	Not sufficient steaming to set twist Traverse bar not parallel with spindle Spindle not running true Yarn tension not regular Brake bands worn Soft and unevenly built supply package Stroke too short
Soiling	Dirty hands Handling quills and supply packages by yarn instead of cores Dirty machines Oil leaking along spindle bases
Tight picks, shiners, and broken picks	Bunch not built right causing yarn to slide back behind bunch Bunch too large Knots not placed on outside of package Concave or convex tapers (Also check items listed under *Broken picks and stripbacks*)

WARTIMA

Scheduled inspection, lubrication and overhauling prevent costly mill shut-downs



Warpers need regular overhauling, lubrication and cleaning to perform properly under present conditions.

● Warpers, like most other equipment in cotton mills, have been taxed heavily by running for long periods with little time out for the overhauling that is required of all high-production machinery. New tenders, haulers, creelers, and fixers have been put on these machines, and while they are gaining experience, the machines probably do not have so good care as with the older, higher-skilled workers. To make sure the warpers are being maintained in the best possible condition, overseers, in company with their best fixers, should go over the machines frequently, list all jobs to be done to prevent breakdowns, and have these jobs done as quickly as possible. This may mean overtime and Sunday night work for the fixer and overseer, but several hours spent this way may prevent long, costly delays in production.

Slasher and loom efficiency are greatly affected by the condition of the warper, and the results of good maintenance of warpers are quickly spread over these operations. High selvages, soft spots in beams, loose ends, over-tensioned yarn, kinky yarn, over-runs, and crossed ends take a heavy toll in slasher and loom efficiency. And all these faults can be traced directly to the condition of the warper and its mechanisms.

The following suggestions on overhauling, cleaning, and lubricating, together with Tables I and II, can be used to develop schedules and charts to suit individual plant requirements. Such charts may be prepared by the overseer in charge.

OVERHAULING

Beam Rack—Inspect journal bearings and fulcrums for wear and breakage. Remove and weld parts, replace, and realign and/or refit.

Measuring Roll—Check journal and bearings for wear and alignment. Build up worn journals and bears. Straighten, line, and level roll.

Yardage Clock—Examine condition of yardage clock and knock-off pawls. Oil with light machine oil.

Weights and Pulleys—Check operation of weights and pulleys. Be sure tension is correct for work to be done.

Stop Motion—Test stop motion at ends and center if it is rotary bar mechanical type, and set to knock off at those points. Test at random wires on electric stop motions. Remove and replace damaged drop wires.

Beam Drum—Inspect for rough places, wear, and alignment. Note if internal drive gears are worn. Build up worn parts and realign drum. Examine brake mechanisms and adjust properly. Check to see if beam runs true over drum.

Beam Let-Off Mechanism—Check to see that beam let-off is putting right pressure on beam. Stop motion will stop warp if too much pressure is on beam.

Warper Frame—Check for cracks caused from beams being thrown against frame. If frame is cracked, it should be removed, welded, and replaced. Then frame and rolls should be lined and leveled. All bolts on warper frame should be tightened.

Clutch—Check for starting acceleration to see that machine doesn't start too fast, which over-loads motor and causes fine yarn to break, since tension is not entirely off yarn.

Brake—Check brake and set to stop beam in 1 to 1½ sec. If brake does not stop beam promptly, the broken end is covered by yarn. If stopped too soon, beam may skid, thus abrading yarn. With the hydraulic brake, this adjustment can be made by adjusting a small nut if nothing is wrong with the fluid line or cylinder. Refill cylinder with brake fluid if necessary. Never mix two different fluids.

Comb—Examine each comb dent and test operation of expanding mechanism. Repair comb dents, screws, and levers so that the operator does not have to force the comb mechanism.

Slack Take-up Roll—Check slackener roll and align journals and bearings. Straighten roll and build up worn bearings or journals. Examine lifter weights and racks for broken teeth and repair by welding. Line and level racks.

Blower and Fans—Check air currents from warper blower and from fans on creels to be sure they are directed against the yarn or cones so as to remove lint.

Creel—Check alignment and stability of the creel. Check electric stop motion to see if drop wires are making contact. Adjust drop wires to stop

MAINTENANCE OF WARPERS

ends properly. Look for worn, damaged, rusty drop wires; and repair or replace damaged wires. Replace broken porcelain steps and crooked skewers.

Beams—Examine beam journals and alignment of heads; send damaged beams to machine shop for overhauling.

LUBRICATION

Proper selection of oils and greases, and the regular application of these lubricants are important steps in the preventive maintenance of warpers. Bearings on fast moving parts are greased with pressure guns suitable for the grease fittings used. Other points —such as beam journal bearings, quadrants, chains, pulleys, gears, guide rolls, bearings, motor bearings, etc.— are oiled or greased with hand dispensers.

Greasing and oiling practices that are suitable for most warpers are given below.

Plain Bearings—Lubricate plain bearings by using hand-dispensing oil can using a medium heavy-bodied, high-grade machine oil. If bearings are equipped for grease application in a pressure grease gun, use a soft medium cup grease.

Cylinder and Carrier Rolls, Ball Bearings—Grease these anti-friction bearings with a grease of low starting and running torque, and good chemical stability.

Quadrants, Gears, Studs—Apply grease of medium degree of hardness that has more adhesive qualities than ordinary cup grease of like consistency.

CLEANING

Blowing Off—Blow off creel and warper after every beam.

Wiping Off—Wipe off warper with waste once each week.

Relay Coil—Clean relay coil contacts, drop wires and reset mechanism once a month with crocus cloth.

Creel Sprockets — Remove thread waste from creel sprockets.

SCHEDULES

Table I and II are schedules developed in one mill for inspection, maintenance, and lubrication of Barber-Colman high-speed warpers. Similar schedules can be worked out for other types of warpers.

Table I. Maintenance and inspection schedule for Barber-Colman warper
(160 hr. operation)

DAILY

Skewers	— Check
Drop Wires	— Check
Creel	— Blow off after each beam
Warper	— Blow off after each beam

3-WEEKS

Clutch	— Inspect, overhaul and reline if necessary. Remove clutch only when trouble occurs.
Pressure Levers	— Check to see if too tight or too loose.
Brake	— Look for leaks in fluid line and brake cylinder. Inspect brake facing, cleaning and renewing when necessary. Remove brake only when trouble occurs. Keep brake fluid above bleeder pipe in the VWH 29 master cylinder on the warper brake. Do not use oil in brake cylinder. Use brake fluid. Don't mix light and heavy fluid.
Contacts	— Clean all controls on warper and replace when needed.
Creel Sprockets	— Remove thread waste.
Let-off Mechanism	— Inspect let-off mechanism.

MONTHLY

Reset Cam Switch Box	— Clean contact points with crocus cloth.
Warper Motor Switch	— Never work on 550 v. warper motor switch. This must be done by plant electrician only.

6-MONTHS

Drop Wire and Contacts	— Remove unit cover bar and clean drop wires and contacts.
Motor Ball Bearing	— Check for proper lubrication.

Table II. Lubrication schedule for Barber-Colman creel and warper
(160 hr. operation)

DAILY

Anti-Bounder	— Oil
Clutch Cleaner	— Oil
Oil Bearings	— Oil

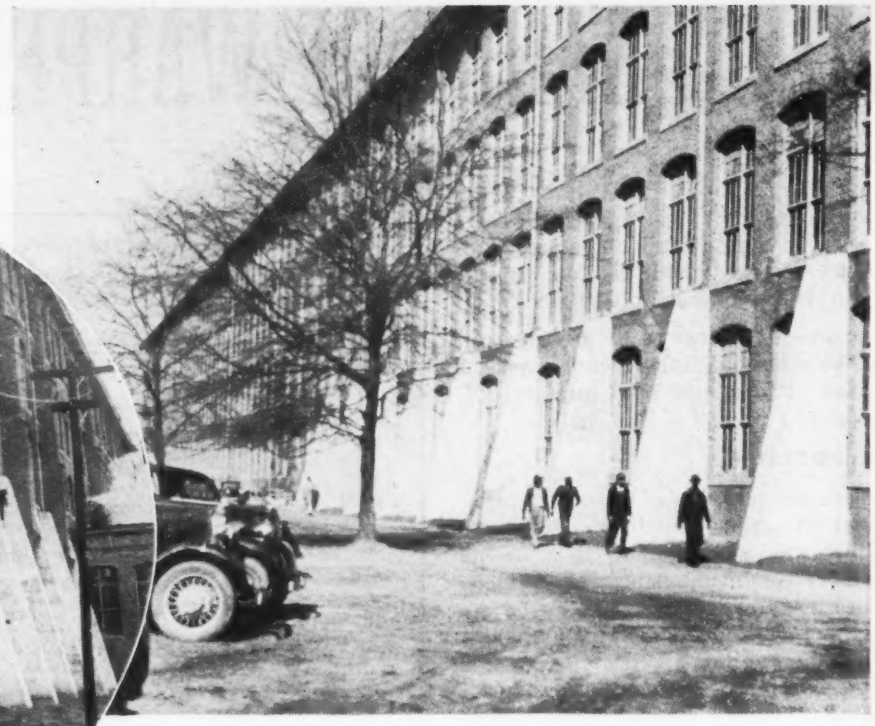
WEEKLY

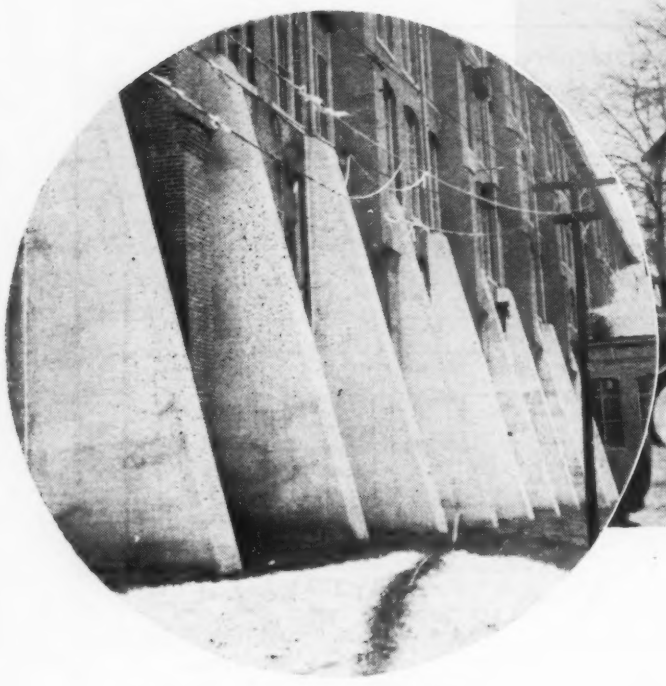
Creel Sprocket	— Grease
Bearings and Warper Fans	— Grease
Let-off Screw	— Grease
Horizontal Drive Shaft	— Grease
Gear Box	— Check and oil if necessary

3-MONTHS

Drum Bearings on Clutch of Warper	— Grease
Dash Pot	— Keep full of oil. Add as needed.
Beam Bearing Assembly, VWA 29	— Grease

Buttresses extend up to the second floor along the weave room wall *(right)*.





On the opposite wall at the lower end of the mill, similar buttresses are anchored *(above)*.

TO REDUCE VIBRATION

A large southern mill has buttressed the outside walls of its weave room

CONCRETE BUTTRESSES constructed at the lower end of the Monarch Mills, Union, S. C., over two years ago, have eliminated the excessive vibration caused by the installation of new high-speed machinery. Building vibration and sway became very noticeable when over 400 X-Model Draper looms began operation in the second-floor weave room. These new looms were replacing a similar number of old E-Model looms, and it was ascertained that the additional speed of the new equipment was causing the building to vibrate.

Vibration was particularly bad on the floors above this weave room, especially on the fourth floor where the spinning room is located. In this department, the traveling cleaners, of the type with tracks supported by the spinning frame creels, began to derail frequently. The master mechanic tried to brace the spinning frames' creels, but this did not stop the cleaners from jumping off the tracks or the frames from getting out of line.

Industrial buildings have been known to sway because of machine vibration before; however, the amount of sway at Monarch was considered detrimental to the efficient operation of the department above and below the weave room, and it was believed that keeping the machinery aligned would be a difficult problem.

Engineers were called in to devise a way of bracing the structure. Their first attempt was to anchor the floor beams to the walls securely by bolting the ends of the beams to steel plates on the outside walls. This locked the floors and walls together securely to form a rigid structure, which did vibrate less. However, in a few weeks the bolts in the plates worked loose and the vibration started again. After considering the problem further, it was decided to brace the walls from the outside with heavy concrete buttresses. Since the second floor weave room was the source of the vibration, it was decided to place the buttresses at intervals for the length of the room on the two long walls of the building. Twenty buttresses were used on each side, one at each point where the inside floor beams were anchored to the wall.

Buttresses were so designed that they extended to a point just above the second-floor level. The foundation of each buttress was started several feet below the ground level to give a firm anchorage. The side wall was anchored by making two pockets in the wall at different heights, into which concrete was poured at the same time the buttresses were poured. Thus, each buttress was dovetailed to the mill wall in these two places to give additional rigidity and prevent wall and buttress from separating. Concrete was poured over the week-end so as to allow time for setting before machinery was started and thus prevent damage to the concrete.

CARD SPEEDS and Yarn Quality

Cotton grades have more effect on appearance than the r. p. m. of cylinder or doffer

By JOHN M. COOK and A. Y. WILLIS, Jr.
Cotton Technologists, U. S. Department of Agriculture

● Lower grades of cotton must be utilized to a greater extent than usual because of rapid depletion of supplies of better grades and the record crops of the lower grades for the last two years. Card-speed tests on five grades of cotton led to the following conclusions: (1) that yarn became progressively poorer in appearance and neppiness increased to a greater extent by using lower grades of cotton than by using higher doffer speeds, (2) higher grades of cotton are necessary when good appearance is essential, even though some improvement can be effected by slower carding; (3) higher card-cylinder and lickerin speeds were found most beneficial to yarn appearance; (4) yarn strength is not affected by greater beating in the pickers or by increased card doffer speeds; (5) waste was greater for the lower grades and more efficient carding at cylinder speeds were detected in the increase in waste.

Five bales of cotton ranging from Good Middling to Low Middling including Middling Gray from a one variety area in Mississippi were used for the study. Staple length differences were small ranging from 1 3/32 to 1 5/32 in. Each bale was separated into at least 10 uniform spinning test lots and spun into 20s, 30s and 40s carded warp yarns. Ten lots of each bale were given the same picker treatment, and five of them were carded with a cylinder speed of 168 r.p.m. and with a doffer speed of 8, 10, 12, 14, and 16 r.p.m. The other five were carded at a cylinder speed of 192 r.p.m. with the same series of doffer speeds. As doffer speeds were increased, there was a proportionate increase in the speed of the feed roll and production per hour.

YARN APPEARANCE AND STRENGTH. Yarns became progressively poorer in appearance, and card web neppiness increased to a greater extent by using lower grades of cotton than by using greater doffer speeds. These results demonstrate the necessity for higher grades of cotton when good appearance is essential, even though some improvement can be effected by slower carding or by faster card cylinder and lickerin speeds. Higher card cylinder and lickerin speeds were found most beneficial to yarn appearance with productions of 12 lb. or more per hr.

No significant differences in yarn strength were found between the three lots given more cleaning at the picker and those given normal picker treatment. An analysis of the yarn strength data for a given grade shows no significant differences between lots carded at different doffer speeds. It was concluded that neither the rate of card production or cylinder speed has any important effect on yarn strength. Yarn strength differences found are probably attributable to differences in fiber length and other properties rather than to grade alone.

WASTE. Less waste is removed when production is increased by greater doffer and feed roll speeds and when cylinder speeds are reduced without changing the rate of production. This is due to more cotton being compressed between cylinder and flats, with the result that the cotton is subjected to less carding action. Also, when production is increased by greater doffer speeds or when the cylinder speed is increased, more waste is made. Percentage of visible waste removed from two grades of cotton processed at different doffer and cylinder speeds are shown in the accompanying table. No significant effect on card work was found for the lot of Good Middling or the two lots of Middling Gray that were subjected to more than normal beating.

Each lot of cotton was manufactured into yarn without difficulty as far as the machining was concerned, but the Middling Gray and Low Middling grades made the atmosphere very dusty and uncomfortable and the machinery required more cleaning.

Abstract of report issued by the U. S. Department of Agriculture, Food Distribution Administration, in cooperation with Clemson Agricultural College.

Percentages of visible waste removed from Good Middling and Low Middling cottons processed with five different doffer speeds and two cylinder speeds.

Item	*Waste Percentage*									
Doffer speeds (r.p.m.)	8		10		12		14		16	
Cylinder speeds (r.p.m.)	168	199	168	199	168	199	168	199	168	199
Good Middling	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
Card:										
Flat strips	3.06	3.88	2.81	3.26	2.68	3.04	2.68	2.81	2.55	2.86
Cyl. & doffer strips	.80	.72	.78	.83	.94	.87	1.03	.83	1.09	1.07
Motes and fly	.80	.98	.67	.80	.65	.76	.62	.72	.43	.63
Sweepings	.14	.18	.14	.18	.13	.13	.22	.22	.13	.13
Total	4.80	5.76	4.40	5.07	4.40	4.80	4.55	4.58	4.20	4.69
Opener, pickers & card										
Total (1)	8.31	9.13	7.66	8.30	7.72	8.01	7.84	7.90	7.53	8.07
Low Middling										
Card:										
Flat strips	4.20	5.16	3.74	4.22	3.46	4.17	3.21	3.56	2.98	3.22
Cyl. & doffer strips	.99	.95	1.12	1.09	1.27	1.26	1.45	1.39	1.43	1.54
Motes and fly	1.46	1.76	1.34	1.47	1.22	1.38	1.04	1.23	1.02	1.19
Sweepings	.17	.28	.29	.23	.17	.28	.23	.17	.23	.17
Total	6.82	8.15	6.49	7.01	6.12	7.09	5.93	6.35	5.66	6.34
Opener, pickers & card										
Total (1)	13.93	14.62	13.09	13.99	12.84	14.02	12.77	12.83	12.49	13.33

(1) Based on net weight of cotton fed to first picker process.
NOTES: *With a cylinder speed of 168 r.p.m., the speed of licker-in equals to 420 r.p.m. With a cylinder speed of 199 r.p.m., the speed of licker-in equals to 500 r.p.m.*

PART IV

Determining Costs of New Fabrics

By THOMAS O. OTT, Jr.
Southern Editor, Textile World

Previous articles in this series on Styling and Designing Consumer Fabrics, which began in the September issue, discussed the place and functions of the stylist and the designer and described the manufacture of fabric samples. Subsequent articles will deal with the designing of specific types of fabrics.

● New lines of styled fabrics must be carefully costed and all elements of manufacturing and merchandising expense considered so that the fabrics can be sold competitively and still be profitable. This end can be accomplished only by the closest cooperation and collaboration between the stylist, designer, mill superintendent, and cost accountant. If a thorough job is not done in ferreting out new or hidden cost factors, the fabrics may prove unprofitable to a mill. Too much emphasis cannot be placed upon accurate data being furnished by the stylist, designer, and sample supervisor, and upon an adequate cost system being installed to meet the special conditions imposed by new fabrics.

Estimated costs are necessary before samples are made in order to determine if the sales price will fall in the correct bracket. If it does not, the designer and stylist must revise the specifications so that the sample can be made to fit the requirements. The fabric specification record can take any one of several forms, provided it shows the estimated yarn and fabric data needed by the cost accountant for the basis of his work. One suitable form was shown in Part II of this series. As a rule, the responsibility for filling out the fabric specification rests with the designer, and the more information he includes, the easier it is for the accountant to consider all cost elements in his figures. This specification should then be sent to the superintendent for his comments, and he in turn should pass it on to the accountant for figuring. By routing initial cost sheets in this manner, many things unknown to anyone can come to light.

After the sample is made, the fabric should be tested under controlled laboratory conditions and the actual specifications—such as weight per linear or square yard, yarn numbers, ends and picks per inch, and warp and filling take-up—compared with the initial, theoretical specification. The basis of all fabric cost should be the theoretical yarn and fabric specification, as a specification figured on a spot check of a fabric will introduce variations from standard in yarn numbers and constructions. Of course, values for take-up or contraction are usually estimated in the initial specification; therefore, for accuracy, the actual take-up as shown by the test is substituted for estimated values. The stylist should give the cost accountant a tentative figure as to the size set to be run for a fabric, as this has considerable bearing on the cost.

COLLECTING COST DATA. Sample supervisors should be charged with the responsibility for collecting cost data on the final sample order as a basis for the final cost estimate. Complete notes on the processing of the stock, yarn, and fabric on a fairly large sample order (500 yd. or more), will reveal many obscure cost factors which often are not indicated by a small sample. Copies of these notes should be passed on to the accountant so that he will have all these factors in mind when calculating costs.

Cost records and cost methods are designed to meet conditions in a specific mill. Many mills, especially those that are just going into manufacture of fancy goods, must often run natural and colored stock and yarns in the same departments. This set-up is difficult to handle, due to interdependency of the machines, operators, and supervision. To avoid complications, mill superintendents generally plan for complete separation of the machinery and personnel on colored work from those on natural work by partitioning off departments or by using separate floors or buildings for

at least some of the operations. Machine speeds and production, operator assignment and techniques, and extra supervision must be reflected on the cost records. Waste percentages and cost of power, cleaning, stripping, etc., must be determined. If these things are done, it is possible for costs to be truly reflected on special fabrics or groups of fabrics, and the accountant can work up tables of differentials or average costs for specific operations for certain fabric types that can be applied to new fabrics without further detailed investigation. The basic fact to keep in mind is to find all cost factors and have a system that will reflect them in the pricing of the fabric. One detailed cost record form used by a mill doing a business in styled fabrics is shown in Fig. 1 (Figures given do not represent actual costs of any mill.) The cost accountant secures basic information for this detailed cost record from the Fabric Specification Record and tables of cost elements of similar yarns and fabrics.

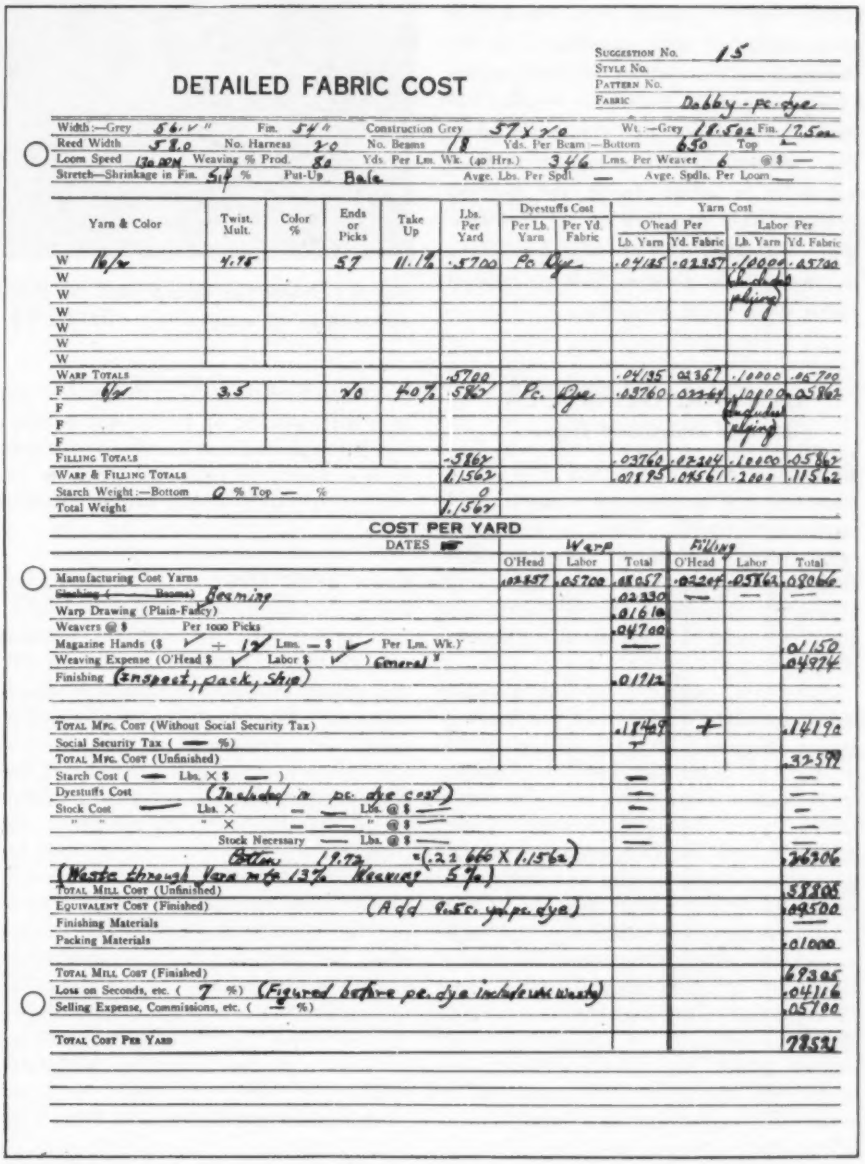
Cost of the yarn for styled goods must be determined on the basis of the size of the lots that can be run and actual conditions under which the new yarns are manufactured. Where change of conditions can reduce cost, the management should be informed so that plans can be made to take advantage of this opportunity. Until such plans materialize, only the true cost on existing equipment should be used and not the theoretical optimum under ideal conditions. To facilitate the figuring of fabric costs, the accountant should build up data in the form of tables on the cost of processing standard lots of fibers and yarns. Often a table of yarn costs is prepared for use as a basis for determining fabric costs. This table is revised only when the changes in cost elements require it. It is sometimes desirable to furnish the designer with a list of yarn costs for his own use in figuring initial costs of fabrics. These yarn costs can be placed on the lower part of the Fabric Specification Record (Shown in Fig. 3 of Part II of this series) under "Remarks."

Cost of finishing goods can also affect the profitableness of a fabric. Accordingly, the cost of finishing in the quantities expected must be added to the manufacturing costs.

Detailed fabric costs should show the cost of the finished fabric ready for shipment to the customer. Additional charges or tables of charges can be worked out for special packaging and handling for specific customers. This is quite often the procedure for mills that manufacture their fabrics into end-use articles.

DETERMINING SALES PRICE. Sales prices of fabrics are tentatively determined by the stylist as soon as he gets suitable samples of the new lines. When final cost sheets arrive, he reviews his prices and puts each fabric in its proper price bracket as suggested by the cost. It may be found that some fabrics can be sold in a lower price range than was expected, whereas others must be placed in a high price range. If a fabric does not fit into any regular price range, the stylist can request a new sample with revisions in construction that will allow him to price it properly. To determine the sales price, the stylist adds to the total manufacturing cost the sales expense and the margin of net profit desired or expected. The sum of all this gives him a probable sales price. However, he may find that he must adjust the figure up or down a few cents to meet the average price that he desires for a range. For example, if he has already priced several fabrics at 75¢ a yd., and the new fabric has a tentative sales price of 74¢ he would naturally raise the price 1¢.

Final approval of all cost estimates, prices, and net theoretical margins of profit should be given by the sales manager; otherwise the stylist may be held responsible if the net profits he figures are not realized. In fact, close consultation between the sales manager and the stylist during the entire time a line is being styled is advisable, so that no drastic changes need be made at the last minute. The final checkup then resolves itself into a quick review of fabrics, costs, prices, profit margins, and profitable volumes required.



DETAILED FABRIC COST

Suggestion No. 15
Style No.
Pattern No.
Fabric Dobby - pc. dye.

Width:—Grey 56.5" Fin. 54" Construction Grey 57 x 70 Wt.:—Grey 18.502 Fin. 17.500
Reed Width 58.0 No. Harness 20 No. Beams 18 Yds. Per Beam—Bottom 650 Top
Loom Speed 130 RPM Weaving % Prod. 80 Yds. Per Lm. Wk. (40 Hrs.) 346 Lms. Per Weaver 6 @ $ —
Stretch—Shrinkage in Fin. 5½ % Put-Up Bale Avge. Lbs. Per Spdl. — Avge. Spdls. Per Loom —

Yarn & Color	Twist. Mult.	Color %	Ends or Picks	Take Up	Lbs. Per Yard	Dyestuffs Cost Per Lb. Yarn	Dyestuffs Cost Per Yd. Fabric	Yarn Cost O'head Per Lb. Yarn	Yarn Cost O'head Per Yd. Fabric	Labor Per Lb. Yarn	Labor Per Yd. Fabric
W 16/2	4.75		57	11.1%	.5700	Pc. Dye		.04135	.02357	.10000	.05700
W										(Included in plying)	
W											
W											
W											
W											
Warp Totals					.5700			.04135	.02357	.10000	.05700
F 6/2	3.5		70	40%	.5862	Pc. Dye		.03760	.02204	.10000	.05862
F										(Included in plying)	
F											
F											
Filling Totals					.5862			.03760	.02204	.10000	.05862
Warp & Filling Totals					1.1562			.07895	.04561	.20000	.11562
Starch Weight:—Bottom 0 % Top — %					0						
Total Weight					1.1562						

COST PER YARD

DATES

	Warp O'Head	Warp Labor	Warp Total	Filling O'Head	Filling Labor	Filling Total
Manufacturing Cost Yarns	.02357	.05700	.08057	.02204	.05862	.08066
~~Slashing (Beams)~~ Beaming			.02330	—	—	—
Warp Drawing (Plain-Fancy)			.01610			
Weavers @ $ Per 1000 Picks			.04700			
Magazine Hands ($ ✓ ÷ 17 Lms. = $ ✓ Per Lm. Wk.)			—			.01150
Weaving Expense (O'Head $ ✓ Labor $ ✓) General						.04974
Finishing (Inspect, pack, Ship)			.01712			
Total Mfg. Cost (Without Social Security Tax)			.18409	+		.14196
Social Security Tax (— %)			—			
Total Mfg. Cost (Unfinished)						.32579
Starch Cost (— Lbs. X $ —)			—			—
Dyestuffs Cost (Included in pc. dye cost)			—			—
Stock Cost — Lbs. X — — Lbs. @ $ —			—			—
" " " X — — " @ $ —			—			—
Stock Necessary — Lbs. @ $ —			—			—
Cotton 19.7% *(.22 666 X 1.1562)						.26306
(Waste through Yarn mfg 13% Weaving 5%)						
Total Mill Cost (Unfinished)						.58885
Equivalent Cost (Finished) (Add 9.5c. yd pc. dye)						.09500
Finishing Materials						—
Packing Materials						.01000
Total Mill Cost (Finished)						.69385
Loss on Seconds, etc. (7 %) (Figured before pc. dye inches are made)						.04116
Selling Expense, Commissions, etc. (2 %)						.05700
Total Cost Per Yard						.79201

Fig. 1. Detailed fabric cost record used by accountant to figure all elements of fabric cost.

HIGH-TEMPERATURE HEATING

With hot water will permit economies in the processing of woolen and worsted fabrics

High-temperature hot-water heating systems have been employed extensively in European textile mills for several years, where they have resulted in large economies. In this country initial installations of these systems have been made in the plastics industry, but the war has delayed their widespread adoption. Methods of utilizing high-temperature hot water in cotton dyeing and finishing processes were described by Mr. Geiringer in the September issue of TEXTILE WORLD. In this article he discusses their use in processing woolens and worsteds.

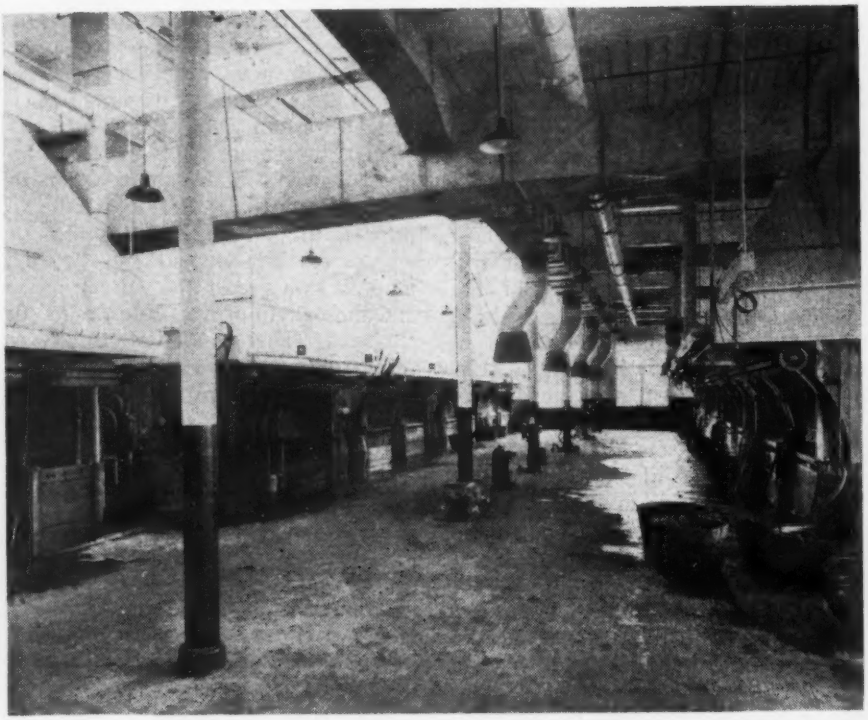


Fig. 1. Dyehouse equipment of this type could readily be adopted to take advantage of economies offered by the high-temperature hot-water system.

By PAUL GEIRINGER
Licensed Professional Engineer

SUBSTANTIAL QUANTITIES of heat are required for processing woolen and worsted materials. Thus, in a woolen mill having spinning, weaving, and finishing departments, approximately the same amount of steam is required for processing as is required for power production.

Formerly, practice was to employ a 150- to 200-lb. boiler and condensing steam engine. It was customary to produce as much hot water as possible by means of a hot water heater hooked up between the low-pressure steam cylinder and the condenser. Ordinarily, this method produced a sufficient quantity of hot water. However, the temperature of the water was not high enough for many processes, and it was necessary to raise it to the desired temperature with live steam. Today, it is economical in designing new power plants to provide boilers of about 400-lb. pressure for smaller mills and 600-lb. pressure for larger mills. The boiler pressure can be reduced to 70 to 75 lb. in a steam engine or turbine, and the back-pressure steam can be transformed into high-temperature hot water at 310 to 320°F. Such a system will provide all the power needed for the mill and also a sufficient supply of hot water to meet all possible requirements and needs for all process work.

HIGH EFFICIENCY. Utilization of hot water at a temperature of over 300°F. has proved to be an economical method for transmitting heat to the processing equipment and for room heating. The high-temperature hot water is circulated in liquid state through a closed piping system. Heat is transmitted to the processing equipment, radiators, etc., by radiation and convection. If this piping is well insulated, the system will have an efficiency of 94 to 95%. Pipe sizes need not be large; in large mills the header need not be over 6 in. in diameter; and in most mills a smaller diameter will suffice.

Due to the fact that large quantities of heat are stored in the high-temperature water, it is easier to meet peak-load demands for heat than with older systems. In a mill of medium size the system will contain 1000 cu. ft. of water, or more. A temperature drop of 15°F. between the flow and return line can be obtained in a short period of time, quickly making available 1,000,000 B.t.u. to satisfy the shock-load demand. However, shock demand for heat does not put a sudden heavy load on the boiler. Obviously, boilers can be operated more efficiently when the load is fairly constant, with no peak loads.

Since no water is lost from the system, the problem of boiler feed-water treatment is minimized and the boiler is kept clean. Likewise the high-temperature hot water is free from gases or impurities which could corrode or clog the pipe lines.

As stated above, common practice in woolen and worsted mills is to store hot water in tanks. This water, which usualy is at a temperature of 100 to 120°F. as received from the condenser, is used in scouring, dyeing, fulling, etc. For some operations, it is necessary to raise the temperature to 135°F. or higher by introducing live steam. It is better, however, to store the water at a temperature of about 200°F. and mix it with cold water as needed to obtain the proper temperature. Hot water mixers suitable for this purpose are available. When water is stored at 200°F., smaller tanks are needed than

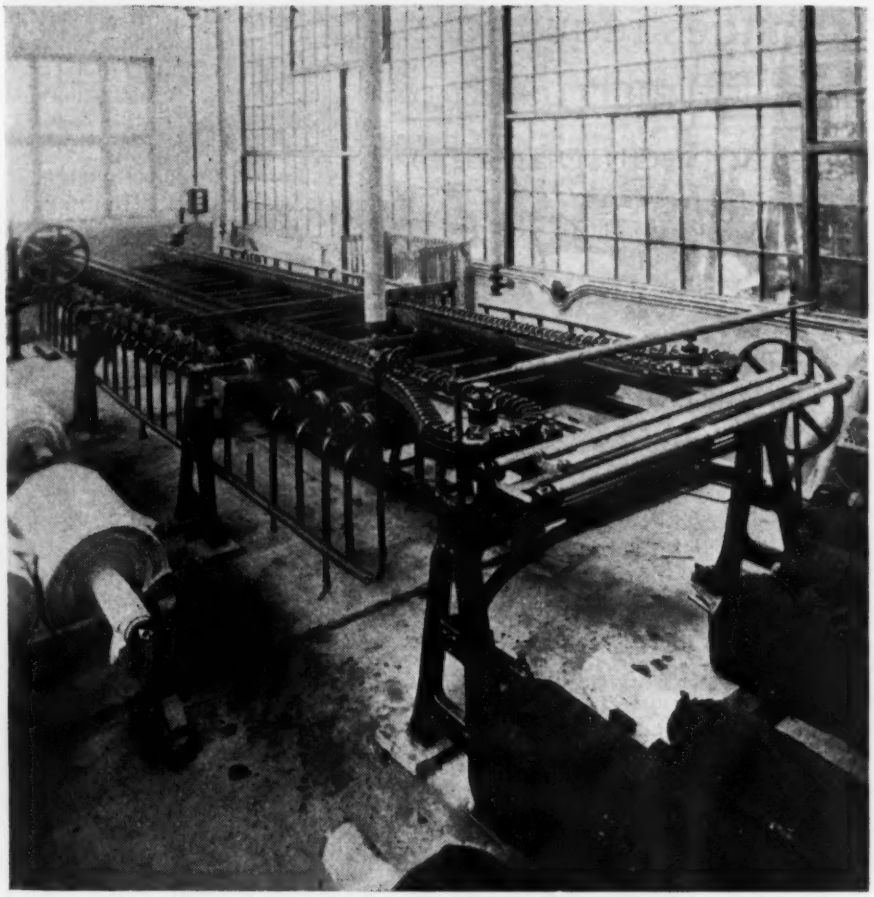


Fig. 2. Tenter dryer equipped with high-temperature hot-water system of heating, thus replacing conventional steam pipes.

when it is stored at lower temperatures. Also, it is easy to hold the water at a constant temperature.

ROOM HEATING. High-temperature hot-water systems for heating the spinning room, weave shed, and other departments are highly practical, and the room temperatures can be readily controlled. The large temperature drop obtained plus the rapid circulation of hot water make it possible to regulate the system to compensate quickly for any changes in outside temperature. Automatic control can be obtained by use of suitable instruments. Any one, or a combination, of several methods may be employed for utilizing the heat from the hot water. For example, one excellent method is to use hot-air-blast unit heaters. Another method is to employ unit heaters in conjunction with extended pipe surfaces to supply by direct radiation about 25 to 30% of the total heat required.

PROCESS WORK. Fuel consumption can be reduced by approximately 20 to 25% by utilizing high-temperature hot water in all wet-processing equipment in woolen and worsted mills. Following are some of the more important applications.

The steaming apparatus in the spinning department and the warp sizing machine in worsted mills both require some heat which can be easily supplied by means of high-temperature hot water.

The wool scouring machine can be provided with hot water from the central storage tank. In addition, coils can be placed in each compartment. If the design of the machine permits, the coils can be placed under a perforated false bottom made from thin sheet metal. This false bottom will protect the coils and prevent accumulations of wool on them.

The hot-blast coils of the raw stock dryer can be supplied with hot water; temperature of the dryer can be closely controlled.

Raw stock dyeing equipment can be supplied with hot water from the storage tank and provided with coils for additional heating. The soap tank and soaping machine require a hot water supply and small heating coil.

Hot water at a temperature of 300°F. or higher will provide the air temperature of 220 to 240°F. needed for carbonizing.

Cloth washers can be supplied with hot water from the storage tank.

Largest savings in fuel will be effected by use of hot water heating of piece dyeing equipment. The machines are supplied with hot water from the storage tank and are fitted with hot-water coils. Most European piece dyeing equipment is now designed to provide space for coils. Although machines made in this country are not so designed, it is possible with most equipment to find space for a coil of adequate size. For example, the machines shown in Fig. 1, undoubtedly could be adapted to the high-temperature hot-water systems of heating.

DYEBATHS. Heating dyebaths by high-pressure steam has not been too successful, due partly to the fact that maintenance of traps has proved troublesome. Although heating of dyeing machines by direct steam is a simple procedure, it is not economical and it has several other disadvantages. With open machines, when the temperature of the dyebath approaches the boiling point, the steam injected is not absorbed, but passes into the air of the dyehouse, necessitating use of defogging equipment. This condition is largely overcome when closed machines are employed, but even with closed machines, heat consumption can be reduced by hot-water coils. The coils should, of course, be made from a material, such as stainless steel, which will not corrode or affect the dyeing processes. One advantage of hot water heating is that no dirt or other foreign matter is introduced into the bath; another is that the bath is not diluted. Heating up of the bath can be accomplished as quickly as by injection of live steam. European mills which have adopted the high-temperature hot water system in their dyehouses have reported actual fuel savings ranging from 25 to 30%.

Cloth dryers and carbonizers can be heated readily with hot water, as can calenders and presses. A tenter dryer equipped with a hot water heating system is shown in Fig. 2.

Steaming and conditioning machines which have been operated with live steam can be adapted to the hot-water system by placing a coil in a shallow tray. Hot water is fed to the tray from the storage tank and is held at a depth of ¼ to ½ in. by means of a liquid-level control.

High-temperature hot-water heating systems are relatively simple in design and they require little maintenance. Engineers and other mill executives who are concerned with postwar modernization should not overlook their advantages.

FURRING SHUTTLES for Rayon

Changes required in cotton mills using present equipment for weaving filament rayon

By ALBERT REWDT

● Loom adjustments when changing from cotton to rayon should be given very serious consideration as rayon yarn, even after being sized, must be handled more carefully than cotton. When a new warp is started, the following changes should be made:

Cover the raceplate with either plush or corduroy. Many cotton looms have metal raceplates. These should be removed, and replaced by wooden strips the same thickness as the metal. To cover it, cut corduroy to the proper width and length. Now apply a thin film of glue over the raceplate. Tack the corduroy at one end, so that it is held firmly; then stretch it along the raceplate, and tack at the other end.

Make sure that shuttles are kept very smooth at all times. This should be a matter for daily inspection, as the slightest rough place can cause chafed ends. Shuttles become rough as a result of reeds being out of line, or boxes not being properly adjusted. Weavers should be taught to check their shuttles at least once each shift to make sure there are no rough places. After sandpapering a shuttle, it is good policy to polish it with shellac and oil, rubbing them in briskly.

Furring of shuttles is not given enough consideration; unless shuttles are properly furred, broken picks may occur. These result from various causes, such as cut eyes or pins in shuttles, rough shuttles, rough shuttle-boxes, filling catching in boxes, etc. Before starting to fur a shuttle, it is well to comb out the fur, and cut off all long hairs, so that the fur will be of uniform thickness throughout.

On hard-twist yarns it is customary to extend the fur the full length of the quill, in order to prevent yarn kinking. For soft twist yarns, fur should be about three-quarters of the length of the quill on the back side of the shuttle, and half the length of the front side.

When putting fur in shuttles, never have the grain on both pieces running the same way, but place one with grain forward and the other with grain backward. The reason for this is to obtain uniform tension on yarn coming off bobbins.

Tensions must work freely in order to take up slack in yarn when the shuttle enters the box. Improper tension on shuttles will cause rough cloth. The object of tension rings is to take up the slack in yarn, after the shuttle has been boxed. To ascertain whether tensions are working properly, hold shuttle in the hand and pull on the filling steadily. If the tensions move back and forth without any strain, they should function satisfactorily. If the rubber on the tension spring is too tight, it will prevent the tension from operating properly.

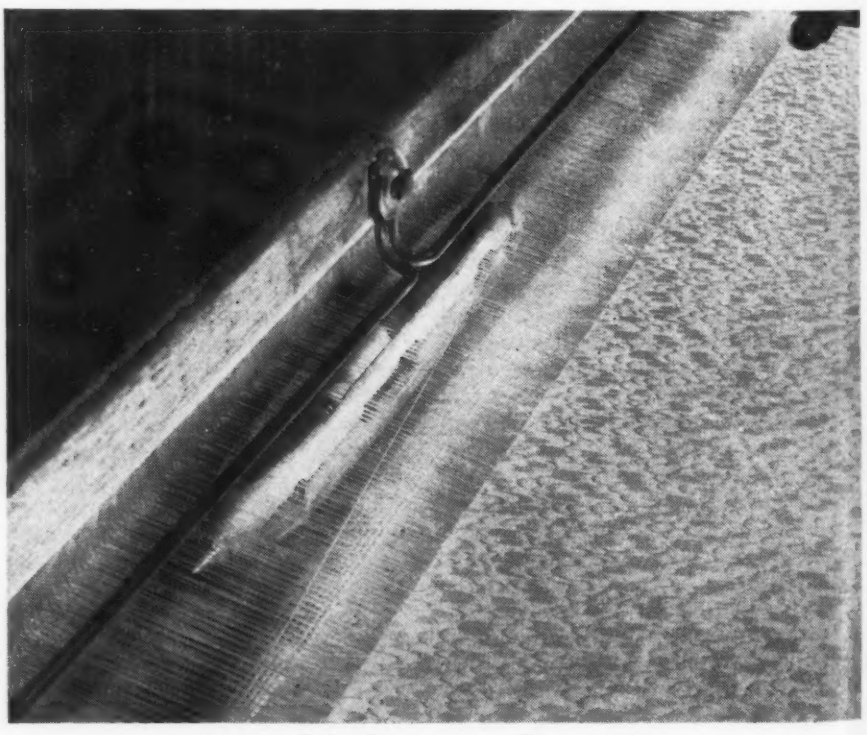
Reed cradles on looms should not be too tight, but have a certain amount of play. The correct amount varies somewhat according to type of fabric being woven. A small amount of side play in the reed is helpful, especially on fine-denier yarns.

Reeds must be in perect alignment in order to enable shuttles to run true. To line up a reed, use a steel straightedge and place the straightedge in the box. The back of the box should line up with the front of the reed.

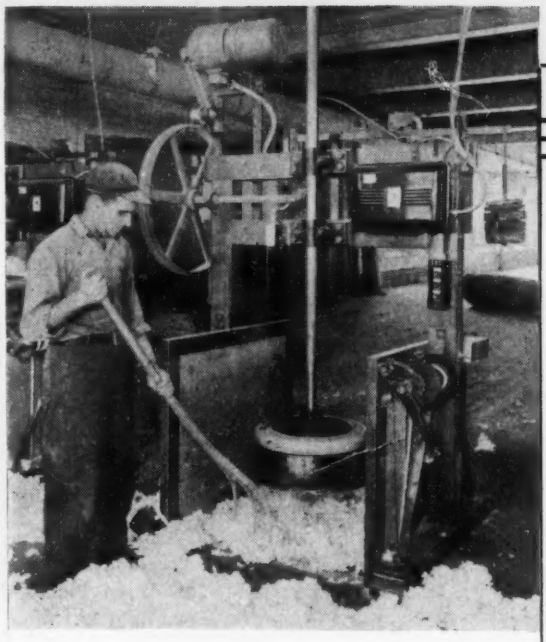
The shed should be just large enough for the shuttle to pass through without touching the ends, and it should never be too low on the raceplate. In other words, the ends should never rub on the raceplate; they should barely touch it.

Care should be taken in setting picking motions, in order to get as light a pick as possible. This can be done by proper adjustment of binders. Binders should hold the shuttle in the center, but many looms are so set that shuttles are checked by the binders in back. This necessitates the back being tight and more pick is required to drive the shuttle in and out. When shuttles are checked at the back, it is very difficult to throw shuttles straight.

Finally, boxes should be so adjusted that when the binder is released from the shuttle, the shuttle will be absolutely free. Hence, the shuttle should be held by the binder and not by the box front. If boxes are so set, looms can be run with a very light pick, which will lengthen the life of picker sticks and pickers. A harsh pick is detrimental and should be avoided.



Furring of shuttles assures uniform tension.



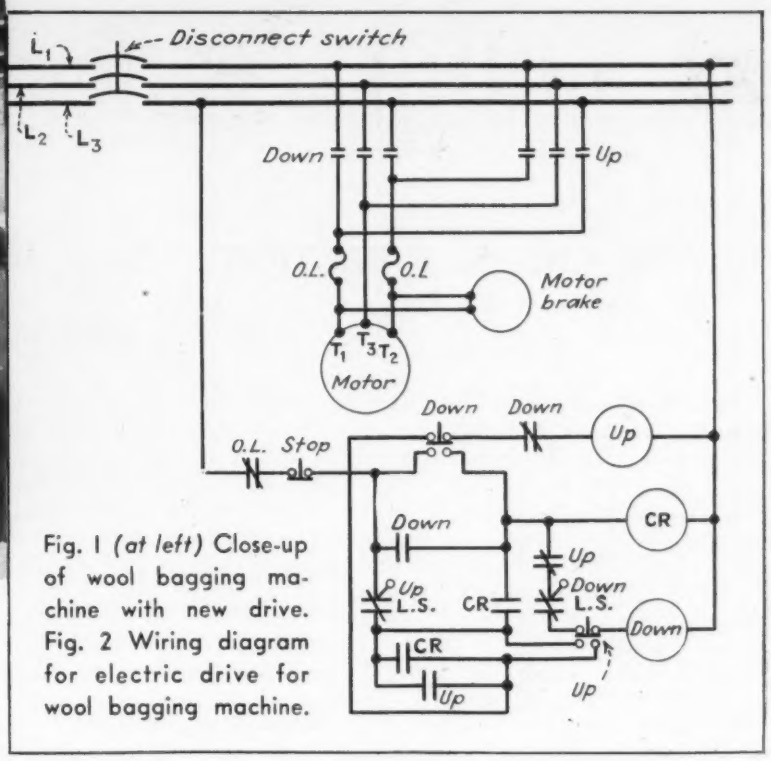


Fig. 1 *(at left)* Close-up of wool bagging machine with new drive. Fig. 2 Wiring diagram for electric drive for wool bagging machine.

Unique Drive for Bagging Machine

By F. D. SNYDER
Westinghouse Electric & Mfg. Co.

● Recently one company has installed a new drive for wool bagging machines which has several advantages over the conventional formerly employed. For example, bags can now be filled within 3% of the same weight, as compared to 10 to 15% when the older drive was used. It is rather important in putting wool into bags that it be packed into the bag with about the same consistency. If it is too loosely packed, it will take up too much transportation and storage space; if it is packed too tightly, it will crush the wool, which will affect its quality.

A close-up of a wool bagging machine equipped with the new drive is shown in Fig. 1. The bag is mounted in a ring in the floor and is supported or slung into a saddle which hangs below the floor, and which is supported by the rope and ratchet shown at the right-hand side of the machine. This saddle takes the strain, rather than the burlap bag, of the plunger that pushes the wool into the bag.

The problem consisted entirely of making a motor drive which will push the plunger against the wool in the bag with the same pressure each time the plunger is made to go down. In operation, the operator forks wool loosely into the bag, pushes the "Start" button which will run the plunger downward until a certain pressure is exerted. The plunger will then immediately return and stop at the extreme top, and the operator repeats the process until the plunger will not go beyond the floor level. The electric drive shown provides all the automatic features desired, and the operation is briefly as follows:

On the plunger shaft is a rack which is engaged by a pinion. This pinion is on the horizontal shaft; on the other end of this shaft is the driven pulley with a V-belt drive from a 1-hp., 1050-r.p.m., high-torque, hoist-type, squirrel-cage motor. The motor has a magnetic disk type brake on the end opposite the shaft extension, which serves to hold the plunger in the top position, or in any other position the operator may stop the plunger.

OPERATION OF MACHINE. When the operator presses the "Down" button, the motor starts in the proper direction so that the pinion pushes the rack down. The bearing on the horizontal shaft, next to the pinion, is supported on a member which can slide up and down about ¼ in.; and the bearing next to the V-belt pulley on this shaft is of the self-aligning type so that the right-hand bearing support can move up and down without binding the left-hand bearing. As the plunger goes down into the bag and begins to exert pressure on the wool, the pinion engaging the rack tries to move upward; in so doing, it pushes the bearing support upward against a beam type scale, which beam is weighted as shown at the extreme right of the photograph. When the upward pressure of the pinion lifts the beam scale, a limit switch is tripped, which instantly reverses the motor; the plunger comes up and stops when the triangular bracket on top of the plunger hits the limit switch shown on the machine frame. The operator can adjust the pressure that the plunger will exert by merely changing the weights on the beam scale. The operator is also provided with a three-button pushbutton marked "Up," "Down," and "Stop." The control is so arranged that the plunger can be stopped or moved up or down in or from any position. The wiring scheme used in this control is shown in Fig. 2.

The fact that all bags can be filled within 3% of the same weight is quite a factor and means that trucks and storage space can be used to a maximum capacity. As the friction clutches have been eliminated, maintenance should be considerably lower over a period of time.

LOOMFIXERS' MANUAL

RAYON AND SILK SECTION — Chap. VIII (Cont.) — Protection Motion

By H. E. WENRICH

• A knock-off bunter stand. Fig. RS47, is somewhat similar in construction to that shown in Fig. RS43 and described in the April issue of TEXTILE WORLD. Stands secured to the breast beam by means of lag screws may have the lags replaced with long bolts, as illustrated, to provide a solid mounting. A piece of rubber placed between the lever end inside stand slot absorbs the shock when the dagger strikes the lever.

The lever *b* can be removed from the stand by taking out the lever screw. If the lever should stick in the stand, place a long thin drift on the point and tap with a hammer. Reach under the breast beam from the inside if cloth is mounted to prevent the lever falling on the sand-roll and possibly cutting the woven cloth.

REMOVING BUNTER. The fixer should inspect the bunter stand to determine the best method of removal. On some looms it is better to loosen the breast beam and pry it up slightly, while on others the task is somewhat easier. Should the dagger strike the side of the stand on either side of *c*, Fig. RS47, the stand may have to be removed from the loom and ground out slightly at the point of wear. Or another method may be to move the lay over slightly by loosening the setscrews on the rocker shaft sword stands and tap the lay over, if possible. Inspection will show which of the two is preferable.

DAGGER ADJUSTMENT. Should the fixer hear a slight ringing sound coming from under the breast beam when the loom is in operation, inspect the dagger as it is not in correct working position and requires adjustment.

Should a shuttle be trapped in the shed and cause a pinch mark in the cloth, the daggers are too short and need lengthening. Should the loom bangoff and in place of knocking off continues to operate, the brake or shipper is not set in proper position for the lever, or the lever is not bent at its point far enough forward and hence fails to function properly. Again, if the brake or shipper slips off for no apparent reason while the loom is in operation it may be that the lever point fits too tight against the brake or shipper and loom vibration kicks off the brake or shipper handle.

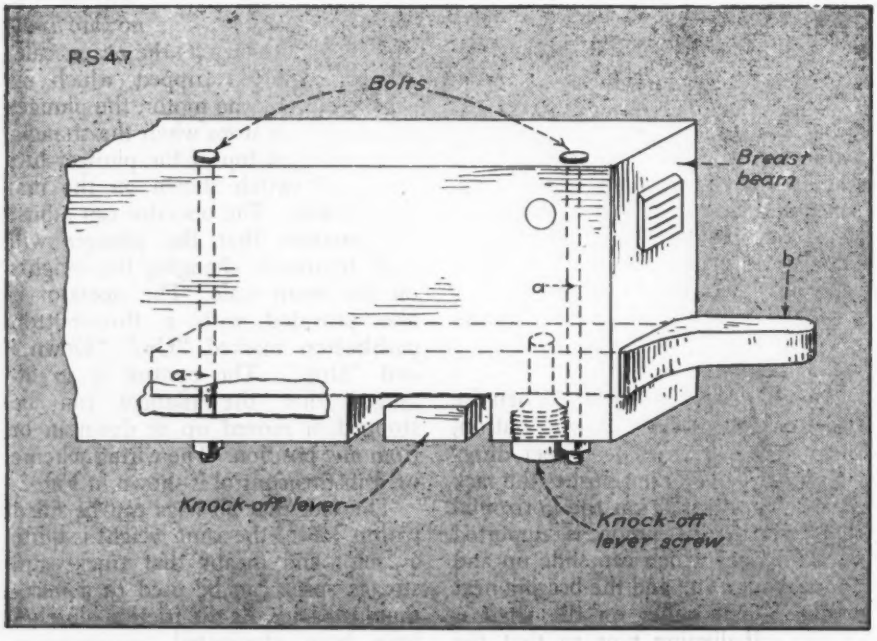


Fig. RS47. Method of mounting knock-off bunter stand on a silk and rayon loom by means of bolts is shown.

Chapter IX
Take-Up Motion

Rayon and silk looms are factory assembled and all take-up drums, pinions and gears are prefigured to give the desired threads per inch in the mills in which they are to be used when the proper pickwheel has been placed upon the loom. For several reasons, identical looms operating on similar constructions will have a variation in pick count of as great as 10% in the woven gray goods.

DESIGNATE PICKS. Designers and convertors should designate filling threads to be woven as "off" the loom rather than figure constructions on a certain pickwheel count. Thus, if a weave is 78 picks off the loom, a 78 pickwheel may give 80 or more picks in the cloth. Should a 76 pickwheel be placed on loom, the final pick count may show the desired count. Some weaves have a greater beat-up than others; some require more warp tension; others more slippage; and these all tend to give a different pick count on the same loom. For instance, a five shaft satin may call for 100 picks "off" the loom and a 100 tooth pickwheel furnish the correct amount of picks, whereas a heavy crepe may call for 100 picks "off" the loom and may give 106 picks on a 100 tooth pickwheel. Therefore, it becomes necessary to place a 93, 94, or 95 tooth pickwheel into work so as to obtain the right number of picks. Weaving foremen, cloth inspectors, or those responsible for loom weaving examination, should take a pick count of every new remount placed in the loom so the correct number of filling threads will be woven into the cloth as it comes from the loom.

FIXING HOSIERY MACHINES

CIRCULAR MACHINES — Chap. XVIII (Cont.) — Split Foot Machine

By JULIAN W. HUGHES

● When a split foot machine is knitting the instep too tight or very loose, the third screw from the left in the bracket carrying the cam-following slides is turned a little at a time either to the left or to the right until the machine is knitting the instep to the correct contour and provides sufficient stretch to this part of the hose.

The fourth screw on the lever bracket is for adjusting the stitch of the upper portion of the foot. And like the other stitch-adjusting screws, it is turned to the left to loosen the stitch, and to the right to tighten the stitch.

SHORTENING STITCH IN LEG. To knit women's hose on the split-foot machine, an adjustable segment cam is pivoted on the end of the fashion drum, instead of being fastened to the face of the drum. It may be swung radially outward and locked in place by a clampscrew and a stopscrew. The first slide on the left-hand side of the lever bracket is in the path of the adjustable cam. When the slide is swung outward to its greatest extent, it will gradually force the vertical arm through the follower slide and away from the drum. Through mechanical connections with the stitch cam set the lever will raise the cam set to its highest point. This action gradually shortens the stitch in the leg of the hose and fashions it to the lines of the calf and ankle.

Generally speaking, when these adjusting screws have been set to produce the desired stitch; that is, in accordance with the gage of machine and yarn counts being run, they should not be touched. The slides, however, are in contact with respective rows of cams on the fashioning drum and will wear, some times unevenly. This wear will allow the auxiliary stitch cams to drop a small fraction of an inch and lengthen or loosen the stitch. The stitch-adjusting screws must then be screwed in to compensate for wear.

When the body yarn is of viscose rayon and is fed to the auxiliary stitch cams (as is the practice with this type of machine) and if the knitting room is not air conditioned, the machine will have a tendency to knit a very tight stitch during damp weather. Under such conditions some fixers believe they should loosen the stitch. In the writer's opinion, this practice should not be followed because the stitch will have to be tightened again when atmospheric conditions change.

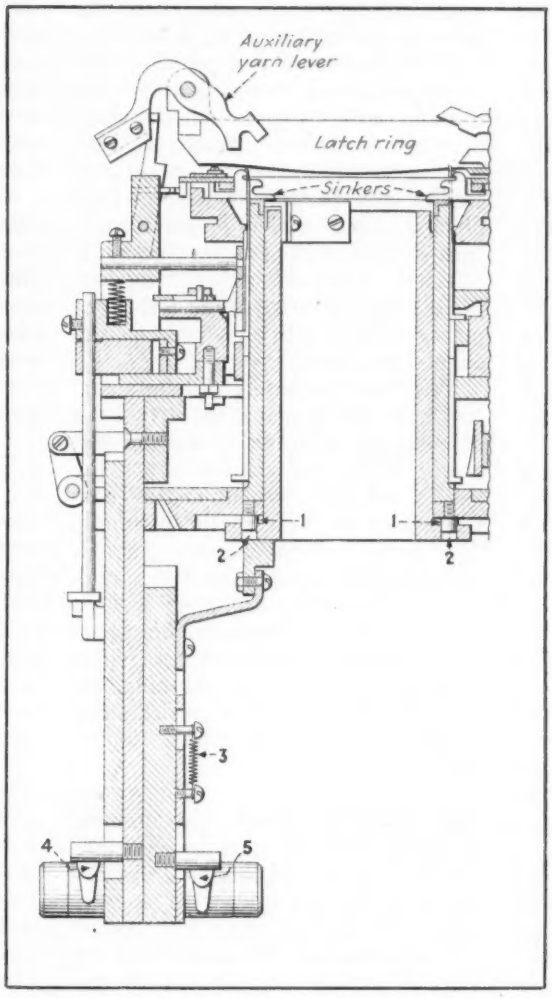


Fig. C52. Mechanism for tilting sinkers.

The stitch should be set to conform to the average temperature and relative humidity of the room for the year round. Thus, minimum adjustment is needed.

TILTING THE SINKERS. It is the auxiliary side that holds the fabric down during reciprocal knitting of the split foot because the body yarn is usually lighter than that used to knit the high-spliced heel, heel and toe pockets, and sole of the hose.

This difficulty is overcome, to a certain extent, by tilting the sinkers on the auxiliary side of the cylinder when reciprocal knitting starts. This is accomplished by a sleeve. Tilting of the sinkers is effected by two quarter circle plates so constructed that they can be moved apart so as to occupy a little more than half of the circle. They are secured to the upper edge of a sleeve inside the cylinder, as shown in Fig. C52. This sleeve can be moved a limited distance vertically inside the cylinder, but rotates with the cylinder.

Pins 1 projecting downward from the cylinder and bevel gear and through the holes 2 in the sleeve flange. The sleeve connection to the vertical slide is similar to the auxiliary cam connection previously described, and the bell-crank connection is pivoted on the same stud that carries the other bell-crank lever. The base of the vertical arm of this lever, however, carries only one cam-follower slide and is acted on by its own special cam race. The tilting upward of the sinker to aid the knitting of the split-foot can be varied to suit conditions by forcing the cam-follower slide towards or away from the cam race by an adjusting screw. The retriving spring 3 returns the sleeve to its inactive level quickly after the split foot machine has completed the knitting of the split foot.

Relief Estimates Are Climbing

Foreign shipments of textiles and clothing may reach $500,000,000

By GLADYS MONTGOMERY

WASHINGTON, D. C.

● Many factors have contributed to the creating of temporary confusion and uncertainty as to where textiles are heading in the Lend-Lease and in the Relief and Rehabilitation programs, including the recent structural changes affecting the United States agency, the delays necessary to the securing of agreements as to the scope of the United Nations Relief and Rehabilitation Administration, and a disposition all around not to go too far with planning until Congress, the final arbiter, has been heard from. However, a pattern is gradually emerging which, although it may well change as to details, provides the general outline within which the program will be shaped and actuated.

Following a process of unscrambling and consolidating several agencies operating in the field, the Foreign Economic Administration, under the direction of Leo T. Crowley, is being set up. It combines and unifies the foreign economic operations formerly carried on by Lend-Lease, Foreign Relief and Rehabilitation, such parts of the Office of Foreign Economics Coordination as may be transferred from the State Department, and the foreign procurement activities of the Commodity Credit Corp.

UNIFICATION. This unification of agencies paves the way for a parallel set-up abroad. All functions of the merged agencies are being transferred to FEA, and their identity as separate agencies is being terminated. What is now known as the Office of Foreign Relief and Rehabilitation Organization, under which come textiles for liberated areas, will soon lose its identity and be merged with the United Nations Relief and Rehabilitation Administration, the over-all survey and distributive agency. However, actual procurement of goods for U. S. foreign relief will be done by FEA with portions of the OFRRO functioning under another name. In the new set-up of FEA, OFRRO programs will be worked out in both a Bureau of Supplies and also a Bureau of Areas with survey activities in the Office of Economic Programs (see chart and explanation); Lend-Lease will come under the Bureau of Supplies. What all this means is that there is a concentrated attempt to do away with the present overlapping of agencies.

The Lend-Lease Act probably will be extended and may even carry over into the early postwar period. However, administrative officials are considering setting up a system of postwar credits with friendly nations to help finance reconstruction in their countries from war to peacetime basis. If adopted, it would either terminate Lend-Lease or make a new shift of power in FEA, with a gradual tapering off of Lend-Lease.

With the machinery of administration now taking shape, the actual job of program planning is moving forward. From the standpoint of the textile industry, two important considerations are basic to the planning. The entire foreign program must fit into the plant-capacity schedules; and, as far as possible, an effort will be made to stagger procurements so as not to impinge too heavily on civilian requirements. Program planning, begun in OFRRO, will be carried along in the new Foreign Economic Administration.

THE BUDGET GROWS. Procurement needs for liberated areas were planned on the basis of a 54 million dollar textile and clothing budget of approximately 54 million yards, but current talk indicates that the amount will run from 150 million dollars up to possibly 500 million dollars. The program is being divided into "blocs" of ten million inhabitants of liberated countries, out of which it is estimated approximately three and one-half million will need minimum clothing requirements. Already four blocs have been planned, based on needs for half cold and half warm climates. Under Jerome I. Udell, director of Clothing and Textile Procurement for FEA, two such blocs are already far enough advanced to commence actual operations—one for entirely new material and the other for distress merchandise. To indicate the extent of the impact on the civilian economy, Mr. Udell pointed out that all the apparel and other textile items needed for each bloc of three and one-half million persons would consume only one-third of one per cent of 1942 production of textiles in the United States. Some members of Congress, however, were quick to point out that this figure would begin to have significance only when the number of blocs was determined.

In the standard men's wardrobe, the following items are included: a mackinaw, sweater, trousers, shirt, cap, gloves, underwear, socks, and shoes. A women's wardrobe consists of a coat, sweater, blouse, skirt, gloves, underwear, stockings, and shoes. Somewhat similar are the wardrobes for boys, girls, and infants.

For the bloc that is made up of new merchandise, these wardrobes mean roughly 2,040,000 pairs of men's trousers, 433,500 shirts, etc. For women in the same bloc, some of the items include 612,000 women's coats, 595,000 skirts, 515,000 blouses, etc.

Approximately 50% of the cloth will go as such and not be converted, according to Mr. Udell. This first bloc is made up largely of cotton goods, with perhaps 20% wool or part wool.

Included in the procurement of distress merchandise for the second bloc of 3,500,000 relief individuals are one million cotton blankets made for overseas shipments which were found to be undeliverable, two million comforters and one million pairs of cotton mittens of which the Army has a surplus, several million yards of army duck and drill with which to make uppers for shoes, almost 500,000 spruce-green mackinaws, and 375,000 spruce-green trousers left over from CCC.

MORE WOOL. A third procurement bloc is being planned which will make use of more wool, perhaps as much as 40% of the entire procurement. As the theater of war moves into colder climates, it is necessary to provide warmer clothing.

In addition, a collection of used clothing is being undertaken in a nation-wide campaign by the Salvage Division of the War Production Board. Although this campaign is in-

tended to handle both domestic and foreign needs, it is anticipated that FEA will be one of the principal beneficiaries. There is antipathy to placing too much reliance on old clothing.

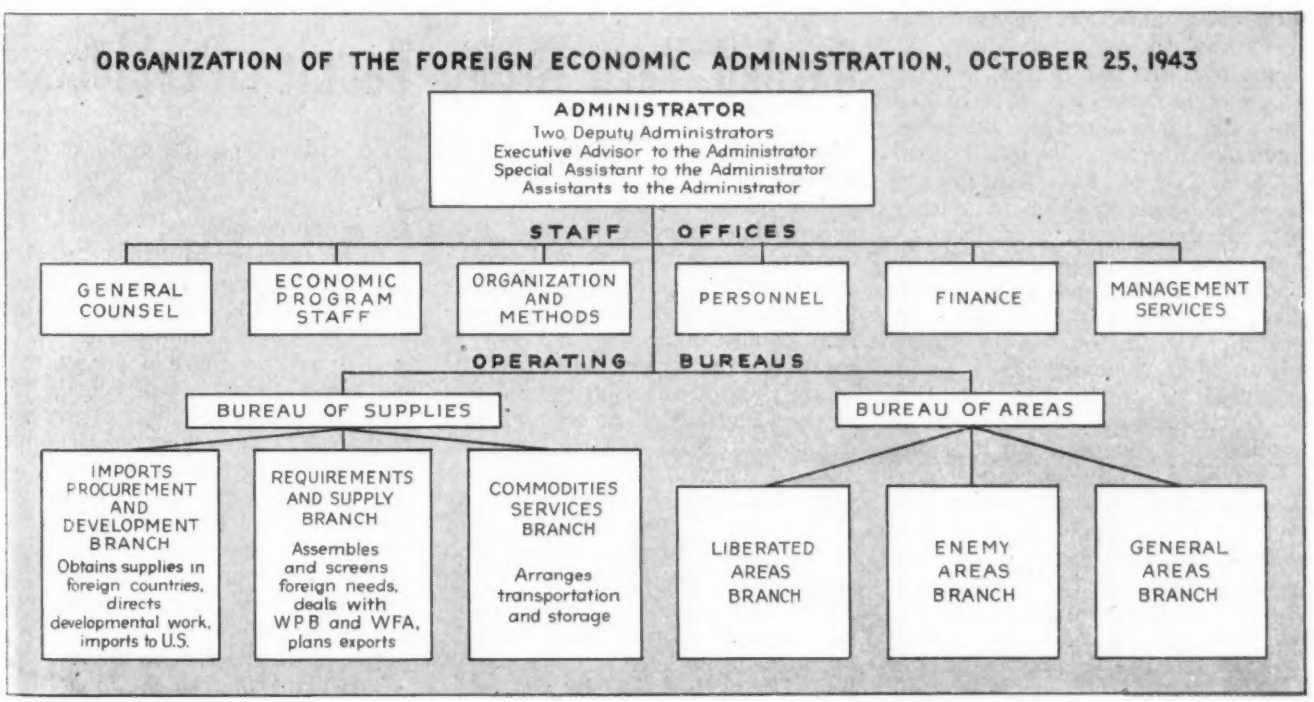
The necessity for speeding up the relief program is emphasized. Already the Army has inquired how soon the United Nations Relief and Rehabilitation Administration could deliver merchandise to take care of the requirements of 2,000,000 people in Italy. This inquiry is no doubt the forerunner of demands that will be made to provide merchandise needs for liberated areas as they open. Since Mr. Udell points out that it takes approximately six months to a year to weave cloths and to convert the fabrics into finished garments, with additional time allowed for transfer of the merchandise to the areas of distribution, it is imperative to stock supplies as rapidly as possible. It will be close to the mid-summer of 1944 before the first bloc of new merchandise is completed, and officials estimate that it will be the latter part of 1944 before we can have any appreciable amount of clothing ready for delivery to the liberated areas. If the war were to end suddenly, Arthur D. Whiteside, vice chairman of WPB in charge of Civilian Requirements, concedes that civilian supplies in this country would be placed in jeopardy. Possibly one out of every three of 450 million people in Europe will need help, Mr. Whiteside estimated, with the bulk of textiles coming from the United States. Great Britain, which is the next largest producer, can turn out only one-sixth of the U. S. volume. However, when the war ends in Europe, it is expected that Great Britain will contribute more wool goods. In the meantime, failure to accumulate goods now, and more as time goes on, would result in a raid on our surplus supplies later. As Mr. Whiteside puts it, "We must pay the piper sometime."

YARDAGE HIGH. Lend-Lease figures continue to be elusive, especially as far as textiles are concerned. This much, however, can be said. Textiles constitute a small percentage of the whole program, but the amount when taken in yards is considerable. An official of Lend-Lease recently told a representative of TEXTILE WORLD that textile requirements, mostly cotton, fall the heaviest in sheetings and print cloths, with drills, twills, and sateens coming next. These groups make up over 50% of the Lend-Lease textile requirements. The other half is distributed over a range of cotton fabrics. Requirements are largely for piece goods. It is pointed out that what material is requested is no indication of what may be allotted. Substitutions have been worked out wherever necessary. For example, osnaburg has been napped and used in place of outing flannel; duck has been substituted for trousering in place of denim or drill.

Thinking on the whole relief and rehabilitation program as it affects the textile industry is gradually turning away from the purely humanitarian aspect to practical economic considerations. It is regarded not only as an avenue through which postwar military stocks can be disposed of, but also an important means of avoiding unemployment in this country and of keeping production on a higher level.

The Atlantic City conference of the UNRRA, composed of delegates from 44 nations, has worked out a comprehensive plan to be followed in administering aid to occupied Europe, with a division of the financial burden in accordance with the ability of nations to pay. The extent of U. S. financial participation will be determined by Congressional action. Hearings will start soon, as a result of President Roosevelt's recent request for an appropriation. Based on the approved formula of 1% of national income for the fiscal year ending June 30, 1943, assigned to each of the uninvaded "contributing" countries of UNRRA, the U. S. share, including administrative expenses, would be $1,356,000,000 out of a 2 to 2½ billion dollar total. The first appropriation to be asked of Congress is expected to run from $300,000,000 to $500,000,000.

Several important reports were made by subcommittees at the conference. One report on Distribution Policies stated that existing machinery for distribution would be utilized wherever possible through commercial channels. For instance, clothing would go if possible to a ministry of supply in each country and then be distributed through existing channels. Another report on Feeding, Clothing and Transporting of Displaced Persons estimates 20 to 30 million persons involved. This indicates a substantial quantity of clothing. A report on Industries Essential To Relief states that whatever industries are deemed necessary will be rehabilitated.



Research Enthusiam at Institute Meeting

CHALKING UP a new high record of attendance (33% over last year), the annual meeting of the Textile Research Institute brought together 400 company executives and technologists on Nov. 18, in New York. Applied research held the stage at the morning session under chairmanship of Giles E. Hopkins, the institute's director of applied research; fundamental research was served at the luncheon in a speech by Dr. Hugh S. Taylor, head of Princeton's department of chemistry; and current research on functional properties of clothing fabrics held the spotlight at the afternoon session, chairmanned by Dr. Milton Harris, the institute's director of fundamental research.

The cotton-carding research project now in progress at N. C. State College under direction of Malcolm Campbell, dean of the textile school there, was described by Mr. Campbell. It is primarily to aid the war effort by achieving minimum damage to raw stock in process and maximum production per card. Mr. Campbell said that rule of thumb on card settings and speeds was the general thing. The program worked out by Geo. H. Dunlap of the textile school faculty, has three steps: (1) attention to some eight or ten variables; (2) study of combinations of the variables; (3) study of effects on four different types of cotton.

A new project being lined up in the wool field is planned to include: (1) survey of methods used in various steps of manufacture; (2) measurement of stock at various steps; (3) check of these results in laboratory; and (4) interpretation of field and laboratory data aimed to aid better line-up of processes. The initial survey by Army QM of 18 oz. serge has disclosed the wide variation in practice through the industry, said Lt. Col. F. M. Steadman. He promised QM cooperation on the new project especially as it affects blankets and overcoatings. R. A. Lukens, of Continental Mills, explained that a prime object of the study was the retention of all the desirable characteristics of wool despite the necessary exposure of the fiber to heat, chemicals, abrasion, etc. A. G. Ashcroft, of Alexander Smith & Sons Carpet Co., testified as a result of the experience of his company in converting to blanket manufacture that there was lack of concrete knowledge in the field. He pointed out that the current opportunity, with perhaps 100 mills working on the same end-point fabrics, turns the whole industry into a great laboratory all prepared for an instructive comparison of methods. Werner von Bergen, of Forstmann Woolen Co., explained the money value of "knowing how" in the experience of his company with Army doeskins, which were being delivered at a loss until means for making the fabric better and at the same time more economically were discovered.

Dr. Hugh S. Taylor admitted that returns to a donor of funds for fundamental research were generally indirect, and were realized largely through increase in supply of trained research workers, and broadening of understanding which means better approach to specific industrial problems. He explained by vivid example how the world's great scientists, who perhaps were never regarded as of significance to textiles at all, had contributed vitally to the progress of the textile industry. The Nylon discovery, he pointed out, would have been impossible without the earlier work by non-textile men on the "architecture of the molecule."

Dr. Milton Harris led a symposium by men from the National Bureau of Standards on functional properties of clothing fabrics. This research, he pointed out, will be of great value to civilian life after the war. The prime purpose has been to keep the soldier warm, comfortable, and dry. To this end, H. F. Schiefer told of the work on factors relating to thermal insulation of fabrics; the setting up of laboratory equipment for measuring heat transmission; and the results which indicated that type of fiber used has little effect on thermal insulating value, providing density and thickness are the same. L. Fourt told of work on water-vapor permeability which aids the body to evaporate its perspiration, and A. Sookne told of tests for water-repellency and the variation in practical field experience from the early results obtained in laboratory tests.

At the business meeting which preceded the luncheon, Fessenden S. Blanchard was re-elected president and executive secretary of the institute. Douglas G. Woolf, former editor of TEXTILE WORLD, who recently joined the staff of the institute as director of information and economic research, was elected first vice-president. Dr. Robert E. Rose and Dr. Harold DeWitt Smith were re-elected vice-presidents, and Edward T. Pickard was re-elected treasurer. Robert R. West was elected a director.

Plans for the future of the institute, as outlined in the president's report, include: (1) coverage of all branches of the textile industry, and all fibers; (2) location of its laboratories near New York; (3) development of a five-point program covering fundamental research, applied research, a graduate school in affiliation with a leading university, economic research, and information service, etc.; and (4) raising of a research fund of $300,000 a year for five years or $1,500,000, plus a capital fund of $500,000.

Carded Yarn Group Tackles Problems

CONTINUED AND INCREASED DEMANDS for cotton textiles until the end of the war; hope of relief of textile mills making standard products from the present provisions of the renegotiation law; OPA price policy; contract termination policy, rehabilitation conferences now under way, and postwar planning were given attention by speakers and members at the meeting of the Carded Yarn Association held in Charlotte, N. C. Nov. 11. Informal talks on many of these vital subjects were given at the luncheon session by Dr. Claudius T. Murchison, president of the Cotton-Textile Institute, who spoke informally, and Dr. H. E. Michl, economist of that organization, who touched upon the fight developing in Congress on the renegotiation law. During the morning and afternoon sessions, spinners heard analyses of OPA price policies by York Wilson of Washington, head of OPA's cost accounting division.

In his talk, Dr. Murchison pointed out that continued military demands and the rapidly increasing requirements for rehabilitation of Allied-conquered territory make it appear that the textile situation will become increasingly tight right up until the end of the war. Conferences on rehabilitation then being held at Atlantic City will have far-reaching effects on our textile industry. Recommendations to raise the present contract minimum for renegotiation from $100,000 to $500,000 are expected to be made to the House Ways and Means Committee by Representative Disney.

The basic policy of the War Man-

power Commission, explained Dr. Murchison, is now to delegate more authority for decisions to area and regional directors, who are to work closely with representative groups in their areas to solve problems of manpower, limited only by general policy in Washington. Manufacturers are expected to work closely with area directors and to consult Washington only on general policy and to check questionable local policy.

Postwar plans should be made by manufacturers as soon as possible so that they will be ready to go into effect at any time. Contract termination policy is confused and is now being studied by Bernard Baruch, as chairman of a section of the Office of War Mobilization. Mr. Baruch's reputation for quick action holds encouragement for the manufacturer.

In commenting on a recent conference with Spencer Love, now head of the textile section of WPB, Dr. Murchison appealed to the manufacturers to send men to help Mr. Love, who told him his section was understaffed. Present members have served faithfully and are in need of able assistants.

Harry W. Moore of Johnston Mills Co., Charlotte, was elected president of the group to succeed J. A. Moore of Edenton (N. C.) Cotton Mills, who automatically became vice-president. Owen Fitzsimmons, of Charlotte, was re-elected secretary and treasurer of the association.

N. C. Mill Men Consider Postwar Trends

THE COTTON TEXTILE INDUSTRY will emerge from the war stronger than after World War I, Dr. H. E. Michl, economist for the Cotton-Textile Institute, told the 37th annual meeting of the North Carolina Cotton Manufacturer's Association in Charlotte, on Nov. 12. The picture beyond the immediate postwar period he indicated is not bright. Then all the competitive forces throttled by war and postwar scarcities will reassert themselves with greater vigor. Before industry can lay any plans, it must know how the Government, now utilizing more than 50% of our industrial capacity and resources, will withdraw its huge purchases from the economic system; its policy with respect to cancellation of contracts and payments; its disposition of war plants; and whether surpluses will be sold without regard to market conditions. Without a prompt and satisfactory solution to these problems, the large accumulated demand for equipment for replacement will not be realized.

In his address, president Ellison A. Smyth, III, pointed out that manpower, increased costs, low ceiling prices, renegotiation, termination of contracts, taxes, and postwar rehabilitation plans are the industry's most pressing problems. For the postwar period the chief problems, now apparent, that the industry must solve for itself are the position of cotton goods, new uses for cotton goods, import and export, employment, and rehabilitation. On the program were Major L. P. McLendon, of Greensboro, N. C., and Victor S. Bryant, of Durham, N. C. Major McLendon discussed many aspects of industrial relations; and Mr. Bryant appealed for industry participation in solving State financial problems.

During the luncheon session, T. A. Wilson, of the North Carolina Industrial Commission, presented trophies to winners in the Eighth Annual Statewide Textile Safety Contest. Winners and man-hours worked without a major accident were: Group I, Chatham Mfg. Co., Pittsboro, N. C., with 154,600 man-hours; Group II, Reidsville (N. C.) Rayon Mills with 312,588 man-hours; Group III, Roxboro (N. C.) Cotton Mills, 2,041,760 man-hours; Group IV, Mayfair Mills, Burlington, N. C., with 485,251 man-hours; Group V, Sayles Bleacheries, Biltmore, N. C., with 1,033,440 man-hours; and Group VI, Blanket Mill of Marshall Field & Co., Spray, N. C., with 1,462,088 man-hours.

Charles A. Cannon, president of Cannon Mills Co., Kannapolis, N. C., in an unscheduled address, warned that war production would be curtailed if textile sections of North Carolina were declared to be a critical labor area. It is important, therefore, that textile manufacturers refrain from overestimating their needs when requesting the local U. S. Employment Office for additional workers. In a critical area all workers must go on a 48-hr. week basis. In North Carolina this would reduce the hours worked in textile mills from 112 to 96.

R. A. Spaugh, Jr., vice-president and general manager of the Washington Mills Co., Winston-Salem, N. C. succeeded Mr. Smyth as president of the association. Other officers elected and advisors retained were: first vice-president, J. A. Moore of Edenton (N. C.) Cotton Mills; second vice-president, R. L. Harris, of Roxboro (N. C.) Cotton Mills, and lieut. governor of North Carolina; secretary-treasurer, Hunter Marshall, Jr., of Charlotte; traffic manager, Carl R. Cunningham, Atlanta, Ga.; and tax counsellor, Richard E. Thigpen, of Charlotte.

New Educational and Research Institute

OF 21 IMPORTANT INDUSTRIES, textiles and their products rate third from last in the point of personnel engaged in research, according to statistics quoted by Ward Delaney, director of the new Institute of Textile Technology, in a paper before the American Association of Textile Technologists, New York, Nov. 3.

The Institute, Mr. Delaney explained, is the culmination of several years of untiring planning by Fuller E. Callaway, Jr., of Callaway Mills, and other forward-looking, aggressive textile executives. It contemplates "a combination of education and research at the graduate level," patterned after the successful Institute of Paper Chemistry. This means that fifteen college or university graduates will be carefully selected each year and given a highly intensified two- or four-year course of scientific training conceived by textile specialists. The studies will be supplemented by actual work in member mills, to provide intimate knowledge of the problems of manufacturing and human relations. Graduates will be available to member mills at a fixed salary for three years.

Research on major problems will form the basis of both masters' theses and doctors' dissertations, and all documents will be available to members. Patents will be the property of the Institute, available for license to members. Private research projects may be undertaken at the members' individual expense, and manufacturers of equipment and supplies may use the facilities at a somewhat higher charge. Members may send their technicians for refresher courses or consultation.

Only American individuals, corporations, or allied groups having their principal machine investment in the cotton-mill type of equipment are eligible for membership. To date companies representing over three million spindles have signed up, and the work of assembling the Institute staff is already under way.

How to Handle Chemicals Safely

Precautions needed to avoid accidents during removal of acids from carboys

TO AID IN THE PREVENTION OF ACCIDENTS, the National Safety Council has issued a series of safe practice pamphlets and data sheets describing proper procedures for handling various chemicals. Abstracts of the Council's publications on safe handling of caustic soda and chlorine appeared in our September issue. Methods recommended for handling bleaching compounds, chlorates, perchlorates, and acetic acid were given in the October issue. Below are described the precautions to be taken in removing acids from carboys.

Hazards—

The principal hazards in removing acids from carboys are acid burns of skin or eyes through splashing of acid while handling, breaking of carboys, leakage of fittings, or failure of devices used in handling acids.

Methods—

The following eight methods have been utilized in removing acids from carboys.

1. Pouring by hand. This is an unsafe method and should be prohibited.

2. Compressed air. Air from compressor lines should never be introduced into carboys. Carboys are not constructed to withstand air pressure, and rupture of such containers may have very serious results.

3. Mechanical Pumps. These are usually of revolving gear type. Such pumps need frequent priming, and a small supply of priming acid must be kept on hand in another container, which should be safely located, covered, and plainly marked. The operator must be careful not to spill acid when priming the pump.

4. Pipettes. These are frequently used, particularly by laboratory chemists, to remove small quantities of acid from carboys. Drawing acid up into the pipette by mouth suction should be prohobited; and a suction bottle or hand bulb should be used for this purpose.

5. Manually operated air pumps. If the acid does not start to flow after a few strokes of the pump, the reason should be ascertained and corrected before any further attempt is made to remove the acid. The exit pipe should be examined at regular and frequent intervals to make sure it is not clogged.

6. Siphons. No one should ever be permitted to apply his lips to the exit pipe of a siphon to remove air from the line; a suction bottle or rubber hand bulb should be used.

7. Ejectors. The air valve should be of the self-closing type and it should be located as far from the carboy and the exit pipe as practicable.

8. Inclinators. The safest types of inclinators are those which hold the carboy boxes on top as well as on the four sides, which operate without the expenditure of undue effort, which automatically return to the neutral from the pouring position in case the operator loses control of the device, and which can be locked in the neutral position to prevent use by unauthorized persons. A splash shield should be attached to the carboy to protect the worker, who should be instructed to operate the inclinator with a slow, steady motion.

Pouring of acid from carboys by hand should be prohibited. An inclinator, pump, ejector, or other approved device should be employed.

Precautions—

1. All employees whose duties require them to remove acid from carboys should be thoroughly instructed in the safe procedure to be followed.

2. Ample room should be allowed for the worker to conduct this operation.

3. Workers should be supplied with and compelled to use approved type goggles and face masks while engaged in removing acid from carboys.

4. Workers should be warned that the wearing of spectacle type glasses does not excuse them from wearing goggles, since acid can very readily enter the eyes from the unprotected sides.

5. Rubber gloves, aprons, and boots should be worn by the operator when engaged in this operation. The sleeves of his shirt, which should preferably be of wool, should be pulled down outside the gauntlets of the gloves, as should his trouser legs over the boots, to prevent acid from entering them and burning him on his arms or legs.

6. When the stopper is removed from the carboy, unless it is of the porous or vented type, it should be covered with several thicknesses of cloth to prevent any pressure which has developed within the carboy from blowing acid on the worker and burning him.

7. The worker should never attempt to lift or move a carboy without first examining the carboy box to make certain that it is not broken or weakened by the action on the wood of spilled acid.

8. When acid carboys are used with an inclinator, they should be brought back to the vertical position slowly to prevent the acid from splashing through the opening onto the worker.

9. When pouring acid into a small vessel, care should be taken not to pour it so rapidly that it will splash from the sides of the vessel onto the operator.

10. The best type of truck for handling acid carboys is the fork type truck in which the extended forks of the carboy fit under cleats on the acid carboy.

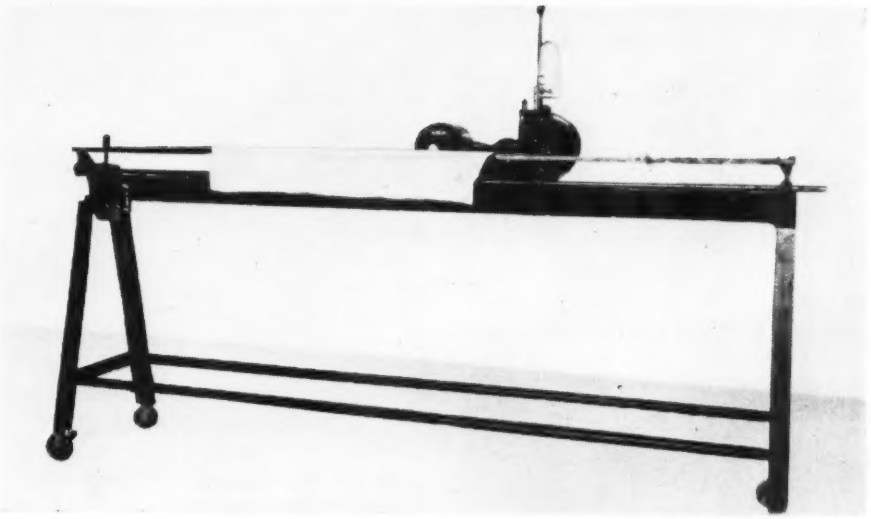
11. Workers should be required to report to the plant first-aid room for follow-up treatment after acid burns have been flushed with water.

TEXTILE EQUIPMENT NEWS

Railway Sewing Machine

The Coronation chain stitch sewing machine head, manufactured by Birch Brothers, Inc., Somerville, Mass., has been added to a railway mounting, forming a new railway sewing machine. This machine is intended for use where a chain stitch machine is desired to sew heavy or closely woven fabric or very loosely woven fabrics that have a tendency to pull through the needle plate of revolving looper machines.

The head has a reciprocating hook around which the thread cannot become wound and commences sewing at the very edge of the fabric. This feature prevents the seam from opening at the selvages during processing. The fabric does not have to be under the needle to prevent winding around the looper. Travel of the head is stopped automatically. The machine is adjustable to various widths of fabric, and the fabric is held on both sides of the needle. The railway mounting is fitted with large rubber tired swivel casters so that it may be moved easily and quietly. The machine may also be had with the bed or track suitable for mounting on the frames of processing machines.

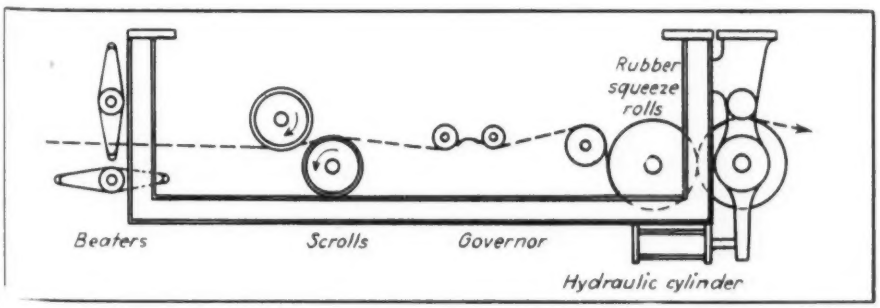


Railway sewing machine for chain stitching (Birch Brothers)

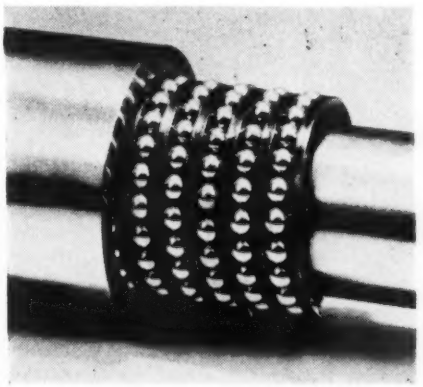
Combination Squeeze Rolls and Scutcher

Designed to fill the requirements of a water mangle or an extractor, combined with an opener or scutcher, is the new combination scutcher and squeeze rolls being offered by Arlington Machine Works, Arlington Heights, Mass.

Welded steel frames support the machine in self-aligning ball and roller bearings from the ceiling timber or suitable framework, thus saving floor space. The unit can be synchronized in tandem with a mercerizing range, dry cans or other drying equipment. Rubber squeeze rolls are placed in a horizontal plane; from 10 to 25% greater extraction can be obtained by the immediate and continual removal of the squeezed liquid by gravity while in this position, doing away with backwash and eliminating, to a great extent, wet selvages. A suitable spray system can be installed just before the nip rolls to provide a last rinse to remove any trace of acid or other injurious elements left in the fabric at that point. Adjustable squeeze pressure by means of hydraulic rams through the medium of an independent, or self-contained oil line, pump and tank with pressure gauges permits easy control of variation in squeeze roll pressure.



Ceiling type combination squeeze rolls and scutcher (Arlington)



Reciprocating bearing partially removed from its housing showing construction of race (Torrington)

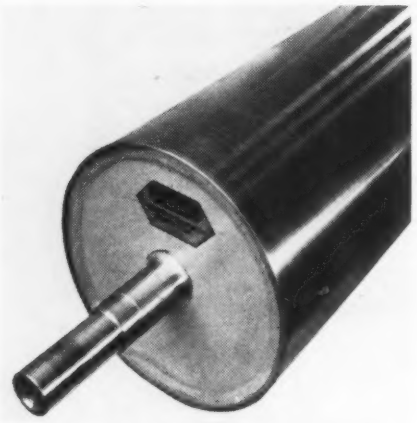
High Capacity Ball Reciprocating Bearing

A new type high capacity ball reciprocating bearing suitable for use in spool winding machines, has been announced by Bantam Bearings Div., Torrington Co., South Bend, Ind.

It is stated that the usual bearing of the ball reciprocating type is limited by its relatively low capacity, but that this bearing of new design permits in general the doubling of the load. The new Bantam construction consists of spirals of balls separated by coils of a specially formed helical spring, as illustrated. The section of this wire is frequently hour-glass shaped, as it not

only facilitates loading the balls but retains them during shipping and installation between the races. Balls are restrained from end exit by the formed ends of the helix. When this bearing is used in rotation only, the helix of the retainer so positions the balls that each has its own special path. Most common usage of this type of bearing is in both reciprocation and rotation. Under such usage, the tracks of the numerous balls make intricate and overlapping designs, often covering every particle of the surfaces of both raceways. It is desirable to hold diametral clearances close and a slight pre-load is permissible.

Steel Roll for Cooling



Steel cooling roll for use in finishing (Rodney Hunt)

A steel roll, specially designed by Roll Department, Rodney Hunt Machine Co., Orange, Mass., is suitable for use with cloth finishing processes conducted by textile plants. This roll has a hard and smooth surface which is used to cool the material being processed. Hollow shafts are set in the ends to allow for the passage of cold water through the roll. The bore of the shaft at each end is threaded to take pipe fittings. This roll is about 12 in. in diameter.

Useful Accessories For Textile Mills

Totally-inclosed motors of a new type have been announced by the Motor Division, General Electric Co., Schenectady, N. Y. These motors are available in both polyphase, 60-cycle, induction type and the single phase, 60-cycle capacitor type. These motors are especially designed for use under conditions where abrasives, chemicals, rains, snow and excessive dirt are encountered. Sizes ranging from ½ to 2 hp. and speeds varying from 900 to 3,600 r.p.m. are available. This Tri-Clad motor should be useful about dye rooms of textile mills.

Industrial electrical trucks with a telescopic lift tilting fork suitable for use in clothrooms for loading and storing materials ceilings high, are made by Yale & Towne Mfg. Co., Philadelphia, Pa. Equipped with a single fork, a lifting height of 71½ in. may be obtained and an additional telescopic lift permits loads to be lifted to 129 in. Load handling capacity is 2,000 lb.

Horizontal parallel shaft type Gearmotors for speed reduction of industrial applications over ranges of 1 to 75 hp. are being produced in a new line by Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. The gears and pinions are of carbon steel and given a special heat-treating process. Lubrication of gears and bearings is by a positive splash system and a new case design allows oil to circulate freely at all times.

An oil reclaimer capable of handling 2,500 gal. of waste lubricating oil per year and reclaiming this oil so that it may be used again, is being offered by Youngstown Miller Co., Sandusky, Ohio. This machine is designed to restore lubricating oils to substantially the same values of fire, flash, viscosity, color, neutralization number, and precipitation number as the new parent oil.

Positive lubrication of all bearings on a machine is possible with the improved Multival system, made by Farval Corp., Cleveland. Oil or grease under pressure is delivered to the distributing blocks by means of a manual or power-operated portable gun which serves as a central pump. Equipment consisting of multiple valve blocks serving 2 to 10 bearings.

A portable dust collector, known as the Safe-Aire, has been developed by Bargar Sheet Metal Co., Cleveland. This machine is designed to provide a simple, flexible and inexpensive dust-collection system for plants and mills where dust control is needed, especially in machine shops or in connection with a processing machine. The machine has a capacity of 600 cu.ft. per min.

Correction

Caption beneath the photograph of equipment manufactured by Du-Grip Mfg. Co. and appearing in Textile Equipment News section of the October issue should have read: " 'Longshot' belt oiler for lubricating shaft hanger bearings. (Insert) 'Longshot' belt oiler brush attachment for lubricating back or outside of belt."

Mill Maintenance Section

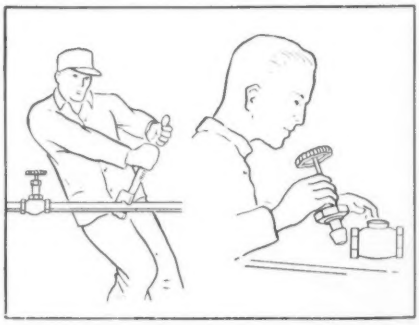
Make Your Globe Valves Last Longer

Valves will last longer if installed properly and given correct maintenance. Suggestions set forth in a folder issued by Manning, Maxwell & Moore, Inc., should be of assistance to all maintenance men.

Installation—When installing screw-end valves, do not use too much force in making up the joint. You may distort the body and seat, thus causing a leak.

When installing new valves, be sure pipe lines, tanks, etc., are clean inside—free from dirt, scale, chips, turnings, and other foreign matter which could damage seating surfaces. Be sure insides of valves are clean, too.

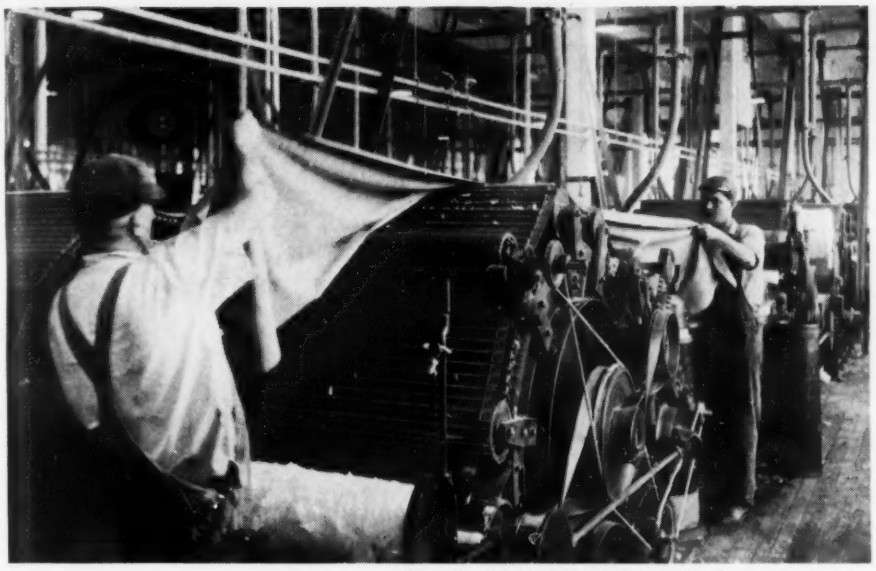
Valves found leaking through the seat and disc, or through the stuffing box, should be repaired or repacked as promptly as possible. The longer leaks are allowed to continue, the more wear of vital parts occurs.



Care must be taken in disassembling and assembling valves as they may be damaged. Never force a joint in making up pipe sections.

Operators should not use long wrenches or bars to operate valves. The additional leverage may twist the stem or cause other distortion.

Before installing valves, make sure



Photos by Associated Factory Mutual Fire Insurance Companies

Waterproof coverings protect valuable carding machinery and stock against water damage caused by floor leakage.

that they are being installed correctly. Some valves can be installed in only one position, such as liftcheck valves and stop-check valves.

Correct Maintenance—A valve may be damaged extensively if it is improperly assembled or disassembled. The disc and stem should be checked to make sure they are in the open position before a valve is disassembled.

The seat in a valve body is one of the most important parts in the valve. When removing the seat, make sure the proper wrench is used so that the seat is not distorted.

After a valve has been in service a very short time, an additional ring of packing should be inserted. A new ring of packing will take up the shrinkage of the packing due to the heat when it is first applied.

When steel valves are installed on high-temperature steam service over 750° F., difficulties with leaks at the bonnet joint sometimes occur due to creep at the high temperature. A practice which has eliminated this difficulty in many high-temperature steam installations is to retighten bonnet bolting after the first 200 hr. of operation.

Protect Your Equipment From Water Damage

"Fire damage was slight, but water from hose streams and sprinklers leaked through the plank-on-timber floor, wetting equipment and stock in two stories—" according to an article appearing in the February issue of *Factory Mutual Record*, published by Associated Factory Mutual Fire Insurance Companies. And, this may happen in your mill.

The article also pointed out that there are numerous locations where the upper-story processes are not unusually hazardous and where the expense of waterproofing the floors would not be justified, but where the lower floors contain occupancies requiring protection against floor leakage. Such are the carding rooms in textile plants, cloth storages, and others.

For situations of this kind, a good supply of waterproof covers should be kept on hand, with men trained to cover the exposed material promptly in the early stages of any fire. At present, approved rubber covers are not generally procurable, but specially treated canvas covers, also approved, are still on the market. Where these better types of covers are not available, waterproof paper may be used as emergency substitutes. The recommended

Cabinets should be located at points where water damage would cause extensive loss in production.

type consists of two sheets of heavy kraft paper with an asphalt binder and reinforced with jute or hemp cords. Such paper is also acceptable under certain conditions on fixed canopies over narrow stock shelves.

Substitute for Tin-Base Babbitt

Contrary to the belief of some mill maintenance men, government restrictions of tin in white metal bearing alloys does not necessarily mean that a good bearing alloy cannot be used, according to an article appearing in a recent issue of *Dutch Boy Quarterly*, published by National Lead Co.

Practical experience in recent years has shown that for a very large number of general babbitting purposes, a correctly alloyed lead-base metal often proves equally as serviceable as a more costly tin-base babbit. Tin-base babbitt stands up slightly better in bearings where the operating temperature is extremely high or where high speed plus heavy load is encountered. However, even in such cases, a modification in design of bearing often makes the use of a lead-base babbitt feasible.

When Steam Traps Fail to Operate

Faulty installation or system troubles are frequently the cause of steam trap troubles. The following summary, as outlined in the *Service Guide*, published by Armstrong Machine Works, should prove helpful in locating and correcting most difficulties that may occur.

Analysis will show that a very large percentage of the troubles listed are in reality system troubles rather than bonafide trap troubles. Whenever a trap fails to operate and the reason is not readily apparent, the discharge from the trap should be observed. If the trap is installed with a test outlet, this will be a simple matter, otherwise it will be necessary to break the discharge connection.

Inspection — Periodic inspection should be made of steam traps. They seldom need repairs, but if they do, the repairs should never be neglected.

No Flow—If the trap fails to discharge condensate, check the following:

Pressure May Be Too High

1. Wrong pressure originally specified.
2. Pressure raised without changing valve orifice.
3. Pressure regulating valve out of order.

(*Continued on page 134*)

KINKS & SHORT-CUTS

A $25 War Bond

for your

IDEA

A $25 War Bond will be awarded each month for the most useful "kink" published in this department. This contest is open to all readers of TEXTILE WORLD, and there is no limit to the number of entries any one person may make.

Contributions must be received not later than the last day of the month to be eligible for the award for the second succeeding month. Items may pertain to production methods, mill engineering, safety, cutting costs, improving quality, speeding up production; in brief, any little device, stunt, kink, or short-cut which you have tried out in your own mill and which you believe will be helpful to other mill men. Items should contain sufficient detail to permit other mill men to utilize the ideas in their own operations. Previously published material is not eligible for the award. Judges of the contest are the editors of TEXTILE WORLD.

TEXTILE WORLD shall have the right to publish any item submitted. Items which are published will be paid for at our regular rate for this type of matter with extra payment for appropriate sketches or photographs. The sketch you submit need not be a finished drawing.

Contributions should be addressed to: Technical Editor, TEXTILE WORLD, 330 West 42nd St., New York 18, N. Y.

THIS MONTH'S PRIZE WINNER

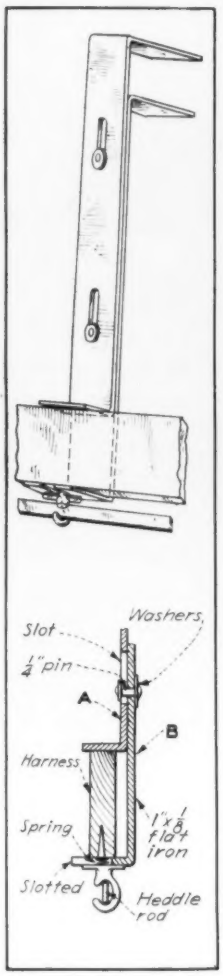
Clamp for Heddle Rod Latches

How many times have you had difficulty in compressing the latches after moving a number of heddles from one side of the rod latch to another so as to center the heddles?

A simple clamp, as illustrated, may be constructed from 1-in. by ⅛ in. strap iron and permits an operative to apply the full lifting force of one's hand to lift the rod latch, instead of having to slip the fingers beneath the flat surface of the latch and raise it so as to hook the latch over the heddle rod.

Two lengths of strap iron are bent at both ends, as shown in Fig. 1, so as to form right-angle bends, at each end; the overall length of the pieces A and *B* is about 10 in. Two ¼-in. holes are drilled in piece A, and in piece *B* two slots about 2 in. long and ¼ in. wide are made. Relationship between the ¼-in. hole and the slot locations should be such that the clamp when open is wide enough to span the distance between the top of the harness to the projections on the latch. Pins, ¼-in. in diameter are fitted through the ¼-in. holes and slots, a washer is slipped over the pin on the slot side and the pin heads turned over with a ball and peen hammer. A slot is cut in the end of piece *B* that is of sufficient width to fit about the latch on the harness.

This clamp is used by placing the end of piece A on top of the harness and the slotted piece *B* is slipped between the harness and the spring of the latch. By working the top end of the clamp as a pair of pliers, that is, by gripping and forcing the handle apart, the heddle rod may be lifted out or into the latch with very little effort.—Fred Greenwood, Westerly, R. I.

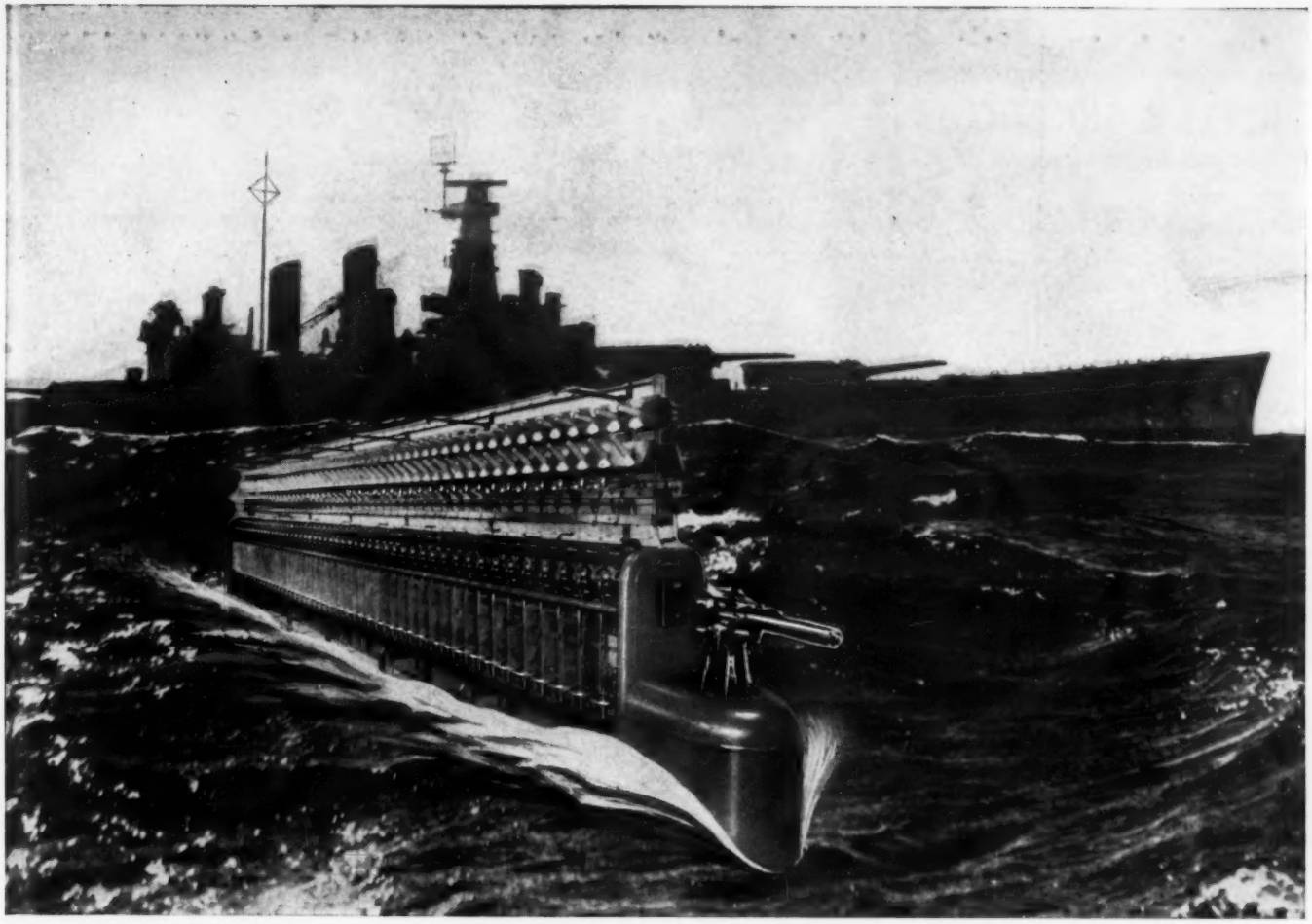


Clamp for assisting in placing heddle rods in or removing them from the latches of harnesses.

Removing Tight Cotter Pins

Split cotter pins must frequently be removed from textile machinery, especially in instances where change gears are removed or where adjustments are required of gears, shafts, etc. Perhaps the simplest method of removing cotter pins is through the use of a pair of cutting pliers, as illustrated in Fig. 1. The cutting edges of the pliers are clamped about the cotter pin and the base of the plier is rested on the end of the castle nut and the plier pressed downward using the edge of the nut as a fulcrum about which leverage may be obtained to extract the pin. Such a system has proved to be rapid and efficient in most cases, and it is not necessary to straighten the bent end of the cotter pin as the leverage obtained and the grip obtained on the pin by the cutting plier is sufficient to straighten the pin as it is withdrawn,

(*Continued on page 108*)



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is going to be better running, more productive than any this ninety-six year old company of textile machinery specialists have ever built — as a direct result of our intensive and extensive experience building equipment for the U. S. Navy. We've had to work to standards of precision and performance beyond any previous practice. We know that the new Atwood Ring Twisters, Up-Twisters and other yarn preparation equipment we've been readying for you will be the better for this experience.

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KINKS & SHORT-CUTS

(*Continued from page 106*)

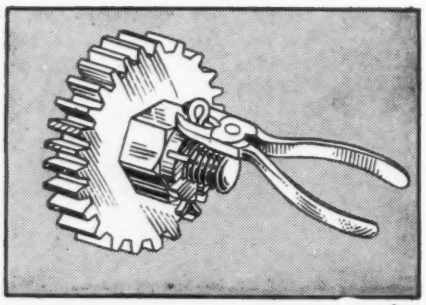


Fig. 1—Extracting cotter pins with cutting pliers.

Another method of removing cotter pins, especially when they are tight and difficult to remove and the portion of the nut about where the pin is inserted or other parts of the machine in that approximate vicinity must be protected from damage, may be accomplished as shown in Fig. 2. A steel rod A is bent in the shape of an elbow and the edge of the rod is sharpened to a point.

The entire edge and elbow must be heat-treated so as to prevent the rod from bending when pressure is applied to it. The pointed end of the steel rod is passed through the eye in the split cotter pin and a movable block or hammer *B* which slides on the rod *A* is moved upward rapidly so as to strike the block *C* at the end of the rod with considerable force. The block *C* is, in reality, a block which is threaded to the end of the rod. By moving the hammer *B* rapidly against the block *C* considerable lifting force is created which permits the tight cotter pin to be extracted easily and without damage to either the pin or to the surrounding machine part. Such a system of removal is helpful in tight places.—W. E. W. (*Eng.*)

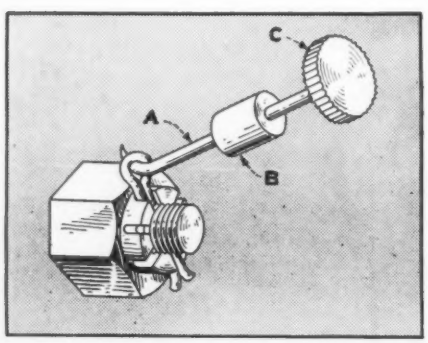


Fig. 2—Device for removing tight cotter pins.

Making Good Warps

Good beams are essential in making good warps. The warper hand should select the beams to run the warps on and avoid using beams which have crooked spindles, wobbly heads, and rough barrels. Some mills are equipped with Entwistle warp machines for making ball warps and beams used on these machines are sometimes shorter than others and require washers at the ends to take out the play. The best washers to use are made out of leather and on beams that require washers should have enough of them placed on before the machine is started to keep the beam from sliding from left to right on the pin. Fig. 1 shows a ball warp run on a beam that was too short without the use of washers. The bulging ends are easy tangled and are a frequent source of bad work. Fig. 2 shows a ball warp which has been run on a good beam and as such will run well.—H. M. (*N. C.*)

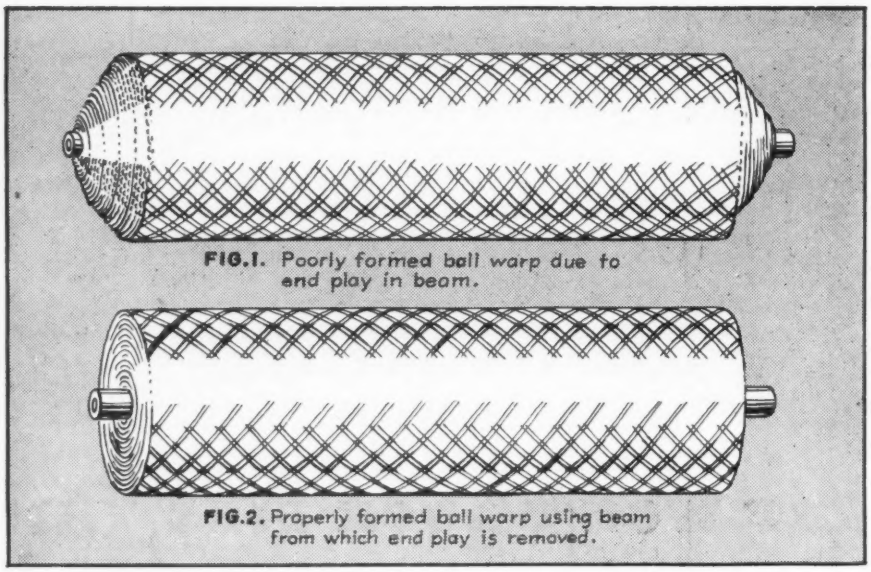


FIG.1. Poorly formed ball warp due to end play in beam.

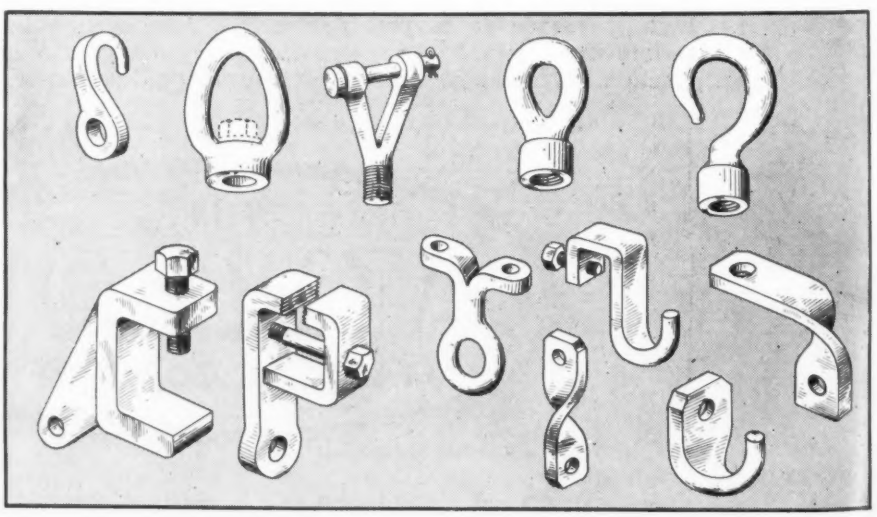
FIG.2. Properly formed ball warp using beam from which end play is removed.

Handy Riggings Help in Moving

When moving or overhauling machinery there is often need to rig up a hitch for the chain falls or a block and tackle so as to obtain a hold on some part to be lifted.

These jobs are much more easily and quickly accomplished if there are plenty of slings, short chain, blocks, bars, and jacks on the job; but there also should be kept on hand a number of forged clamps, straps, eyes, hooks, and clevises of the types shown in the

(*Continued on page 110*)



Handy riggings help in moving or relocating equipment.

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When the war started SONOCO had more than 40 years experience in *back* of them, with an estimated 10 years expansion facilities *ahead* of them.

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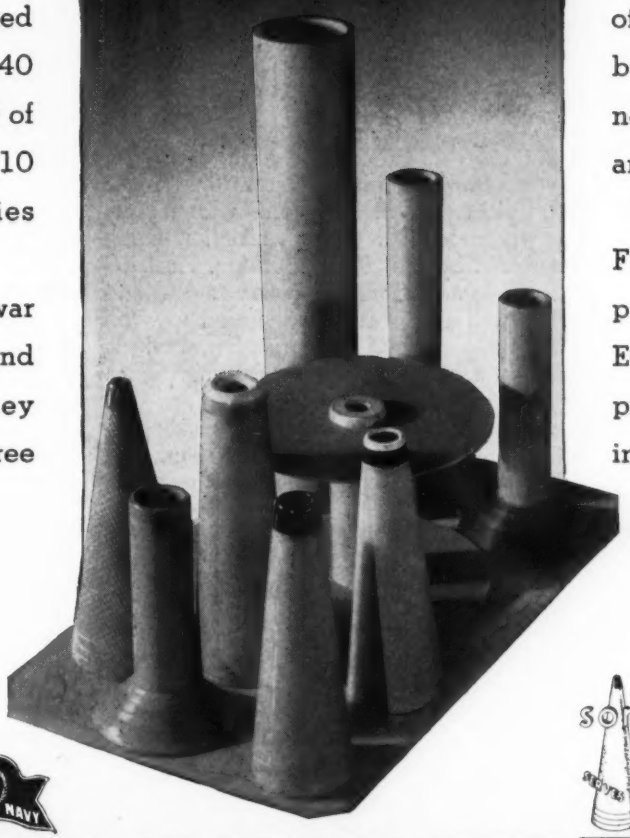

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DEPENDABLE SOURCE OF SUPPLY

KINKS & SHORT-CUTS

(*Continued from page 108*)

accompanying illustration on page 108.

A blacksmith can fashion these accessories at the shop forge and anvil, according to the various designs shown. These sketches may be kept in the shop note book for quick reference when there is little time to design such equipment.—H. W. (*N.H.*)

Lubricating Mops Reduce Machine Wear

A device like the mop shown in the accompanying illustration that can help conserve vital lubricants and manpower should be welcomed by overseers and fixers alike. The writer's first experience with a wick or mop used to hold lubricants at vital spots was in a weaving plant some years ago where a fixer made mops out of cotton bindings for silk books (28 to 30 skeins). These were doubled and tied, and a mop was installed on the loom girt where it could touch the cam nose each time it came up, as shown in Fig. 1. The mop, when saturated with lubricating oil, keeps the cam nose oiled, preventing the pick roller or cone from drying and wearing out. Little oil droppage was experienced as each time the mop was struck the oil was swished further up into the mop center.

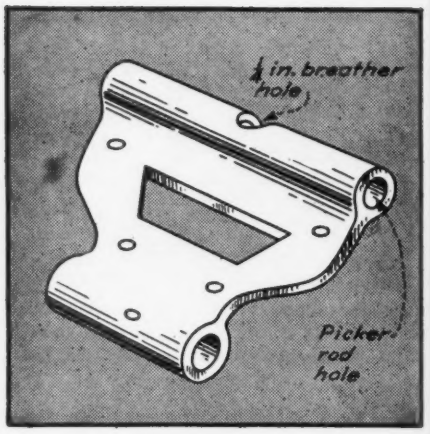
Another application for mops about looms is for oiling the friction collars on loom drives. A small mop fashioned from cord, string, or mop-like cordage and approximately 2 in. long and 1-in. in diameter is slightly flattened out. Fasten the mop, as shown in Fig. 2, to a piece of discarded mount wire and secure the wire to the motor base bolt or another bolt near the friction. Then press the mop down into the friction collar by bending the wire so it will not rub against metal, but only the mop touches the metal lightly. The mop fits over or behind the grease cap.

Fixers find that when the friction collar runs dry it is a cause of constant wear and often results in the loom running slow. As the collar runs hot oil is used quickly, resulting in the drive gear or pulley slot enlarging and/or the collar soon wearing out. This condition often necessitates instillation of new parts and much time being spent by fixers on repairs. After placing a mop in position and greasing it, fixers will find it unnecessary to lubricate the same spot for many weeks, thus saving several pounds of grease on every loom during a single year's run. Other moving parts, such as sliding bars and rods and other motions which are open and require constant or weekly oiling and greasing, can be improved by attaching a mop in such a manner that oil feeding is regular on every stroke or movement.—E.H. (*Pa.*)

Reducing Wear on Rawhide Pickers

Rawhide pickers operating on the picker rod of box looms wear rapidly because of the excessive friction generated by heat during picking. Heat developed within the picker causes it to swell and often gums the oil used on the picker rod for lubrication, resulting in a loggy picker, and causing premature wear of the picker.

Excessive heating in the picker may be prevented by drilling a ¼-in. hole through its back and into the picker rod hole, as illustrated. This hole acts as a breather and prevents overheating. If the picker rod is oiled a picker so constructed has a tendency to work the dirt through this hole in such a manner that it helps prevent a wearing and binding picker.—J. L. B. (*Pa.*)



Breather hole reduces wear in picker.

Blackboard in Department Gives Necessary Details

Many, if not all mills are on a two or three shift basis. In order to synchronize all shifts so that each shift will know exactly what yarn is running a 6 x 6-ft. blackboard is placed in the department. On this blackboard are all running yarns, constants, draft gears, twist gears, travelers, color marks on yarns, etc.

Most of changes in operation detail are figured by the office staff on the first shift. Whenever these changes are made it is recorded on the blackboard. Only the first shift changes the blackboard. Other shifts make many changes, but only in emergencies. The supervisors of the second and third shifts know by glancing at the board what yarn is running. If a change has to be made, it is much easier to compute what change is necessary by the data on the board.—M. C. G. (*Mass.*)

Catalog File Suggestion

Every engineer, superintendent and overseer makes use of catalogs pertaining to his particular line of work. These are used not only for ordering new equipment and spare parts but for the valuable technical and practical data contained relating to the selection, installation and use of the equipment. However, it usually happens that material of this kind which is most useful to any particular person comprises but a small proportion of the contents of the pamphlet and it is generally scat-

(*Continued on page 112*)

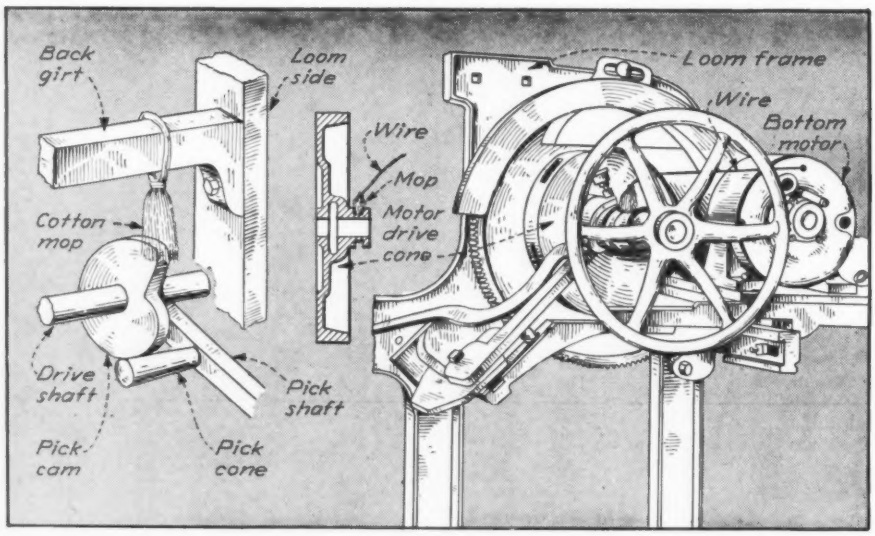
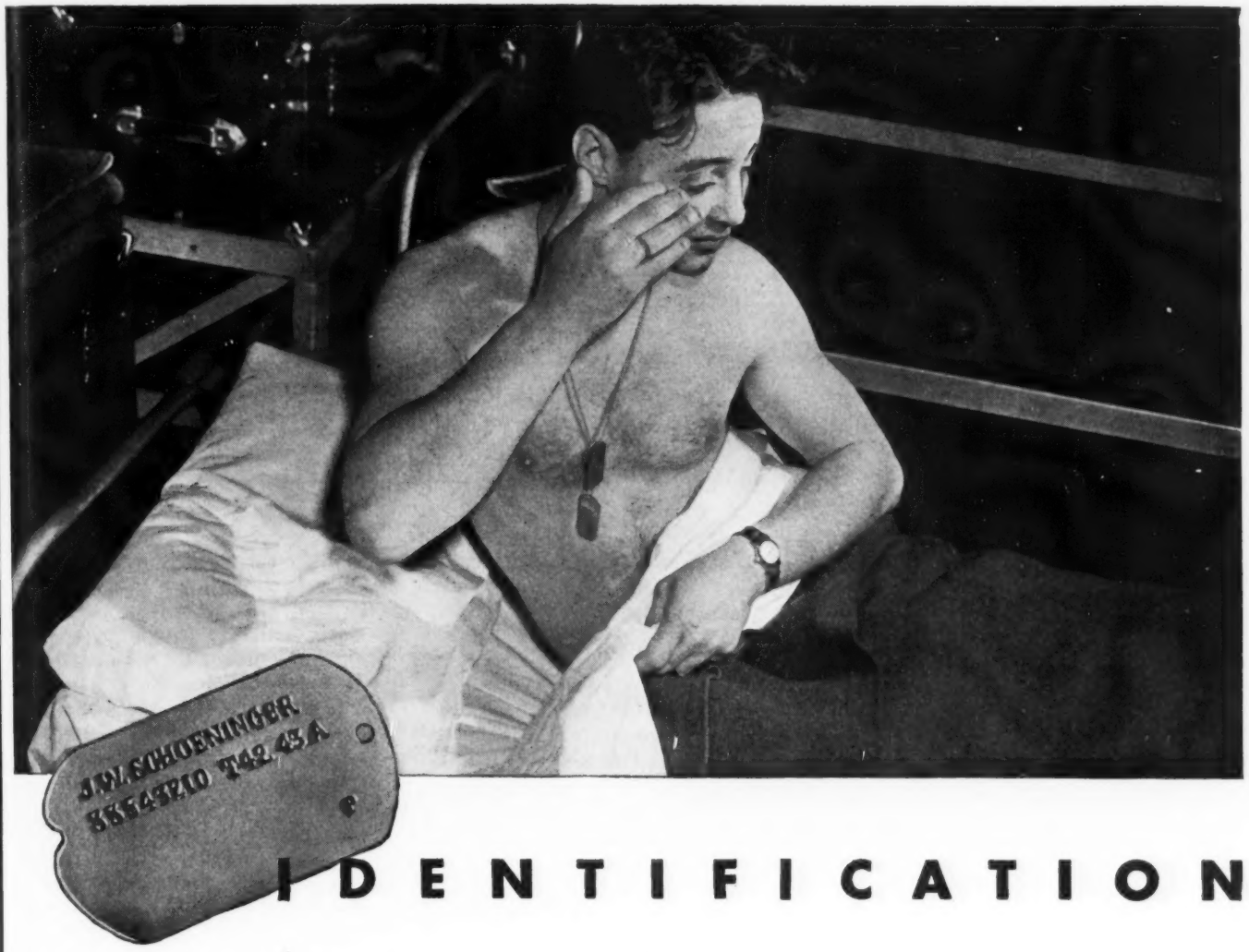


Fig. 1—Mop for oiling cam. Fig. 2 (right)—Greasing friction collar.



IDENTIFICATION

A "dog-tag" bears name, serial number, blood type, religion, date of tetanus injections. Accurate, simple, complete, protective personal identification. Yet the war machine requires similar complete identification for equipment, for clothing. That is where Kaumagraph Dry Transfers, Prestomarks and Lithography play an important part.

Kaumagraph Research adapted Kaumagraph products and methods to rigid, hard-to-meet specifications for uses never conceived for peacetime merchandise. These war-born, war-tested things are available for the many new textile products which inventive genius has produced for the post-war era.

Why not get a head start for the day-after-Victory? Learn now how Kaumagraph Dry Transfers, Prestomarks and Lithography can give your products attractive, practical, economical, protective, sales-stimulating identification. Send for a Kaumagraph Identification Man today.

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Dry Transfers
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New York, 1, N. Y., Empire State Building • • Representatives in Principal Textile Centers of the World

KINKS & SHORT-CUTS

(Continued from page 110)

tered throughout the pages. Also, catalogs are in a variety of sizes which are not easily filed for convenient reference.

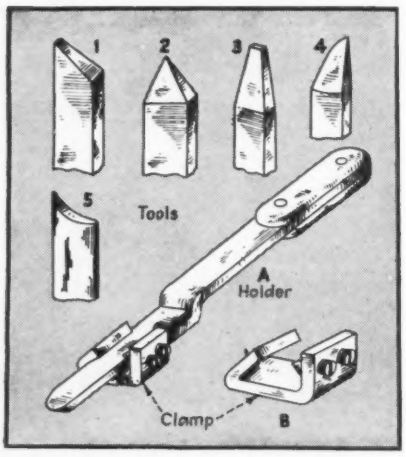
A very satisfactory system which the writer used for many years was to cut out the parts (tables, formulas, etc.) most frequently referred to, and paste them on 5 x 8 in. cards, using both sides of the card for compactness. These cards are filed with suitable index tabs in a box and kept on the desk or in other convenient places.

Other cards may be filed on which is copied data from periodicals or other sources. Often this data is copied on one of the catalog cards to which it is related or placed on a separate card according to the space required.

The filing case used is 5 x 8 x 10 in. in size. Larger catalogs can be filed in cases made especially for holding pamphlets and placed on shelves or in cabinets.—C. L. H. (Mass.)

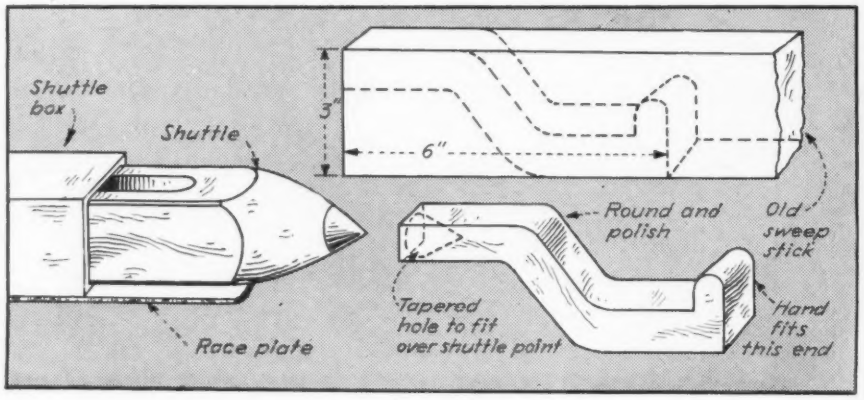
Simple Holder for Hand Tools

Short ends of flat files make very good wood turning tools, bearing scrapers, etc. To make these tools break the files off to the desired length and grind pieces to various shapes, as shown in the accompanying sketch. Make a holder as shown in the sketch at A from ¼-in. flat steel strip and attach a sectional handle of fiber. The attaching clip or clamp is made as shown at B fitted with two headless setscrews, with hardened steel points of conical shape. The gripping is done as the screws force the file into the clamp.—C.H. (*N.H.*)



Tools and holder from scrap.

Stick for Boxing Shuttles



The accompanying illustration shows a worthwhile gadget used for boxing shuttles. Many weavers, who find it difficult to push the shuttle into the shuttle box, will find this easily made tool very useful.

To make the stick, use a discarded sweep stick approximately 3 in. wide and 1 in. thick. Cut an 8-in. length of the stick and fashion it as shown by the dotted lines in the sketch, cutting the excess wood away with a hacksaw. The rough piece will be approximately 1 x 1 x 8 in. Ream out a hole in center of one end so it can take the shuttle point loosely, and then round off the corners to form a handle, leaving the knob at the end as shown to fit the palm of the hand. After the tool has been nicely rounded, smooth off the surface with sandpaper, apply shellac, and when dry smooth the surface again with fine sandpaper.

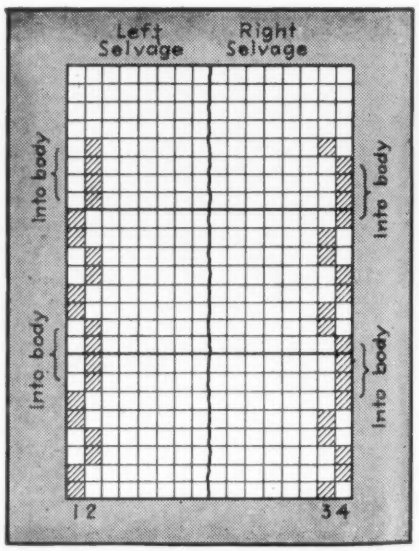
When a shuttle must be placed in the box after a loom bang-off or for other reasons, the reamed-out end of the stick can be fitted over the exposed shuttle point and the shuttle forced into the box properly and quickly.

Fixers can make these gadgets for their weavers, or if desired, the maintenance handy-man can turn a bunch out for the weave-shed. Foremen will find most weavers taking to these shuttle-boxers quickly, as it means many moments saved and no danger of broken finger nails.—H. E. W. (*Pa.*)

Selvage For Loose Weaves

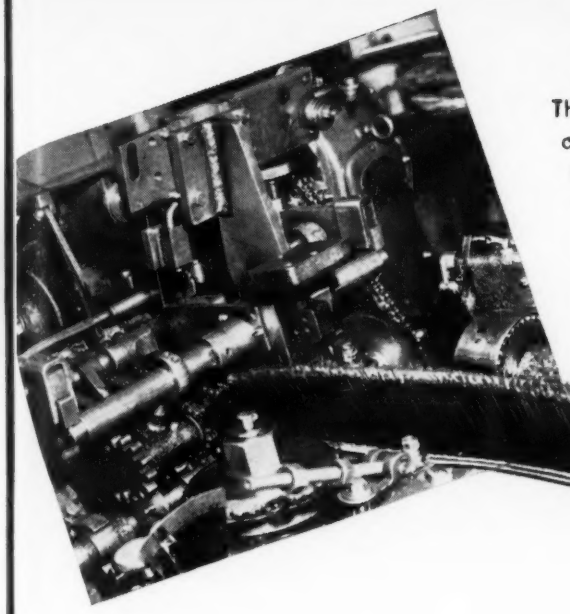
There are many weaves in which the intersections are far apart and the warp floats are long. Where this type of weave is being woven it is usual practice to run the selvage ends from spools independent of the ground warp. If this was not done, the selvages would become tighter than the body yarn and excessive breakage of the yarn in the selvage would result in extra work, excessive waste, and additional cost.

In most instances the weave of the selvage is a two-up and two-down or tape weave. It is possible, if a dobby is being used, to peg the selvage in such a manner so as to allow some of the picks not to be enterlaced but to be woven directly into the body. To the naked eye the selvage is still a tape weave, but the interlacings do not come as often and it will be possible to weave both selvage and body from the warp beam. The amount of actual interlacing may be varied to fit a particular weave. The point paper sketch shows the manner of pegging a dobby chain for the selvage using four shafts. —S. P. (*N. Y.*)



Draft showing selvage for loose weaves.

FULLERGRIPT BRUSH STRIPS
are made on a machine like this..



The brush material is centered over a ribbon of heavy-gauge metal and held in place by an anchoring wire and roll-formed into the finished shape as illustrated ①. Thus, as the bristles are doubled under the anchoring wire (hairpin style) and encased in metal under great pressure, permanency is assured.

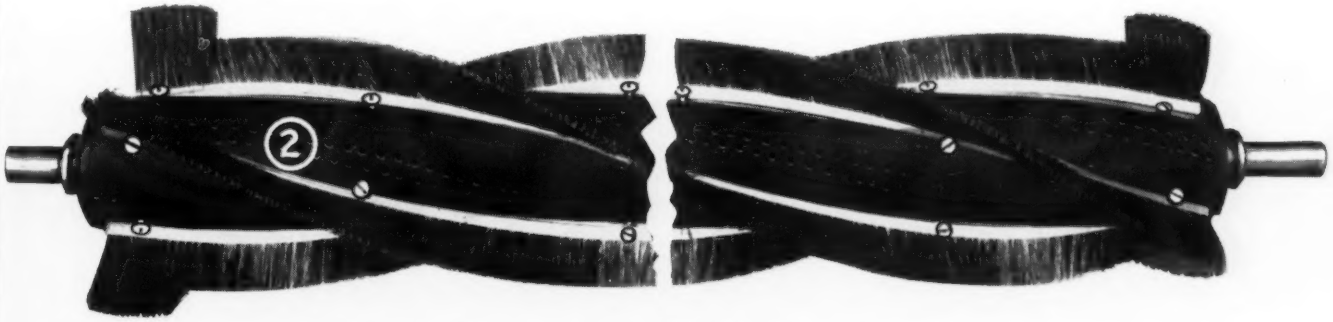
FULLERGRIPT has a solid, continuous fill of material with no gaps or spaces between the bristles, resulting in much longer life and far better cleaning.

COTTON MILLS can re-brush their FLAT CARDS *with* FULLERGRIPT BRUSH STRIPS -

which are shipped pre-formed to the correct degree of spiral (right or left hand). Your own maintenance men can easily mount them to the old brush roll.

Over 6000 Cotton Card Machines

are equipped with our brush sets and are doing a better job of cleaning card clothing.



This is how your maintenance men renew your worn-out card brushes with FULLERGRIPT STRIPS

Put worn card brush roll in lathe centers. Trim off old tufts of bristles with a sharp knife. ② Sandpaper the roll. Apply two coats of black shellac. Drill screw holes on 8" centers and fasten the spiralled Fullergript Brush Strips with the special screws furnished with each set of strips.

EVERY WEEK **some** ***COTTON MILL*** **in the United States installs one or more sets of** ***FULLER FLAT CARD BRUSH STRIPS***

THE FULLER BRUSH COMPANY
INDUSTRIAL DIVISION, DEPT. 8C, 3594 MAIN ST., HARTFORD 2, CONN.

THIS IS NO. 42 OF A SERIES ON

GETTING THE MOST FROM WINDING

Information about winding designed to show improvements in winding equipment and new ideas in the winding operation

(The second of a series of articles on tools used with Universal Winding Machines)

SPECIAL TOOLS USED ON NO. 50 WINDING MACHINE

The No. 50 winding machine requires the use of the following special tools:

Multi-Purpose Wrench 50-2587
Cam Roll Gauge 60-922X
Traverse Bar Bearing Gauge . 50-2865
Spring Lifter Hook 50-279
Grease Gun 50-2725
Oil Gun 90-846
Safety Screw Wrenches—Allen-Type

Where the Precision Slub Catcher is used, the following is included:

Slub Catcher Wrench . . . 50-2832-2CA

Depending upon the type of gainer mechanism either of the following is necessary:

Gear Gain Wrench 50-339
Wind Pulley Adjuster Wrench (Belt Gain) 50-281

The following is used only on machines having clutch drive and Belt Gain:

Clutch Wrench 50-276

Two of these special tools are described below; descriptions of the complete group will be found in "Getting the Most from Winding 42-F," free upon request.

MULTI-PURPOSE WRENCH

Fig. 1 Multi-Purpose Wrench 50-2587

This is commonly known as the Burke-type Wrench. It has six distinct purposes. It has two openings at one end, one opening at the other end, and a slot in the straight section.

1. The larger of the two openings at the larger end is used when adjusting the Breakage Lever (50-2093-3C2). This Lever should be set so that when an end breaks, the Stopping Lever (50-2094-3) will contact the Stopping Lever Wheel (50-1271-25X). When the machine is in running position the Stopping Lever should clear the Stop, ping Lever Wheel.

Wrench 50-2587 is used to loosen Adjuster Nut NU-117CA and Stopping Screw 50-492-7, which permits the eccentric Adjusting Screw 50-489-2 to be turned by hand. When the proper setting of the Breakage Lever has been determined, the Adjuster Nut and Stopping Screw are retightened.

2. This same larger opening is used to adjust Thread Rod Nut NU-126CA on the Precision Cleaner (Fig. 2).

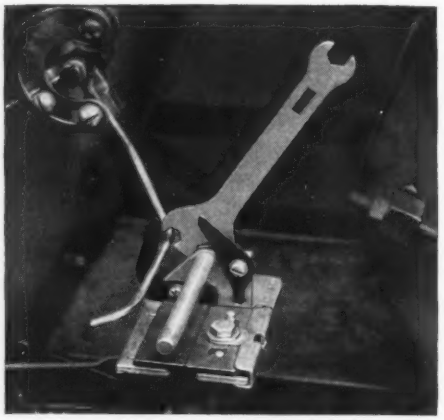


Fig. 2 Illustrating use of Multi-Purpose Wrench on Precision Cleaner.

3. The smaller opening in the larger end fits Nut NU-124CA on the upper end of Tension Rod 50-245 in any tension assembly.

4. The single opening at the smaller end fits Tension Adjuster Screw Nut NU-122 on the Anti-Wear Tension assembly. The setting of this Adjuster Screw is made at the factory when the tension grids are assembled, and any further adjustment is required only in the rare case of the two grids getting out of adjustment. The Tension Adjuster Screw should never be used for changing the amount of tension on the yarn. (See "Getting the Most from Winding" Bulletin 136, page 10.)

5. The slot in Wrench 50-2587 serves two purposes. On a No. 50 Winding Machine having Belt Gain, the slot is used on the end of the Gainer Pinion Shaft (50-53-4X) to tighten the Gainer Pulley (50-56).

6. The slot is also used when replacing the wheel on the Automatic Measuring Clock (Fig. 3). The shaft (A) is flatted at the remote end, permitting the use of the slot to tighten the shaft on the wheel.

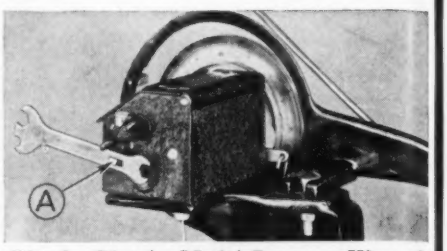


Fig. 3 Slot in Multi-Purpose Wrench used to tighten shaft on Automatic Measuring Clock wheel.

SLUB CATCHER WRENCH

This Wrench is used only in connection with the Precision Cleaner. It is purposely made light in weight in order to avoid use of excessive pressure by hand when making a setting.

At the start of the adjustment, the Wrench should be placed over the Adjuster Screw 50-2801-2CA (A, in Fig. 4) with the offset lower part (B) facing the operator. Since the Adjuster Screw has a right-hand thread, it will be loosened by turning the Wrench to the left (counter-clockwise). A continued light turning of the Wrench will eventually bring it in contact with Stationary Pin 50-2902-2CA (C). This will obstruct further movement of the offset part, but the shank or leg of the Wrench will continue to the left (the Pin acting as a fulcrum), opening the Slub Catcher blades.

With the Thickness Gauge inserted between the blades, the Wrench can be released, bringing the blades together. The Thickness Gauge should contact the entire length of the blade edges. Continued turning of the Wrench to the right will tighten the Adjuster Screw, fixing the blades in correct position.

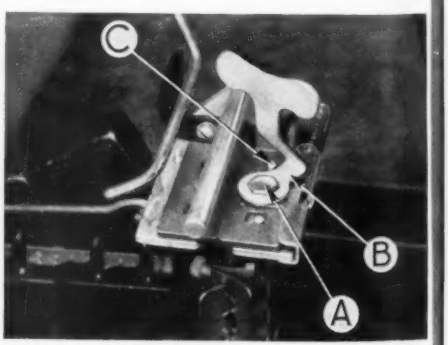


Fig. 4 Slub Catcher Wrench, 50-2832-2CA.

See our Catalog in TEXTILE YEARBOOK
43-GMW-42

"THERE'S A UNIVERSAL WINDER FOR EVERY TEXTILE NEED"

UNIVERSAL WINDING COMPANY

PROVIDENCE BOSTON PHILADELPHIA UTICA CHARLOTTE ATLANTA

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PETE & BILL

PRODUCTION AND HOURS WORKED

WHY SURE, JOE, I KNOW THE COST PER POUND ON 48 HOURS IS MORE THAN ON 40, BUT PRODUCTION SHOULD HOLD UP ON THE 48-HOUR SHIFTS
BUT, PETE, I WOULDN'T COMPLAIN ABOUT THAT ADDED COST IF I COULD GET THE PRODUCTION IN MY SECTION ON THE 48-HOUR SHIFTS THAT I COULD ON 40-HOUR SHIFTS!
1
YOUR WORKERS ARE FOOLISH AND UNPATRIOTIC NOT TO EARN ALL THEY CAN. THEY MUST KNOW THE WAR EFFORT NEEDS THE PRODUCTION AND THE GOVERNMENT NEEDS THE TAXES
A LOT OF MY HELP SEEM TO WANT ONLY ENOUGH TO GET BY ON. EXTRA MONEY DOESN'T GET MANY LUXURIES FOR THEM NOW, AND THEY'RE NOT INTERESTED IN SPENDING MORE ON TAXES.
2
JOE I THINK BILL OVER HERE WILL AGREE WITH ME THAT IF THE HELP KNOW WHY WE WORK 48 HOURS AND WHAT THE EXTRA MONEY CAN MEAN IN WAR BONDS, THEY'LL COME AROUND.
I'VE TALKED MYSELF BLUE IN THE FACE FELLERS, ABOUT WHAT OUR NEW SCHEDULE MEANS, BUT THE WORKERS JUST DON'T RESPOND.
3
I AGREE AND I DISAGREE, BUT I'M NOT GETTING INTO THIS ARGUMENT. LET THE READERS SETTLE THIS ONE. WHAT CAN BE DONE ABOUT IT FOLKS?
4

How can you get workers, who resent the overtime on the 48-hour week, to keep production up to relative parity with the 40-hour week? Your published letters will be paid for — see panel on next page.)

Letters from Readers

Don't Bawl Out Workers

"Correcting Workers' Mistakes"
Pete & Bill, Oct., 1943

Dear Pete and Bill:

I think that Pete is right, bawling out workers is a very poor way to correct them. Some people are slower than average in learning a new job, but if a little time and patience is spent on them, we very often find we have a good worker, and the time and patience has been well spent.

When a worker makes a mistake and needs correcting, the first thing to do is to get all the facts pertaining to the mistake. Secondly, the foreman should try and determine the worker's reason for his wrong attitude or mistake. It may be poor instruction or something the foreman is partly responsible for, and if it is the latter, the foreman must be big enough to admit it and share the responsibility as Pete suggests.

When a foreman finds a worker has to be corrected, he should be tactful, calm and patient, and should start the correcting process with the attitude that he sincerely wants to be helpful and show confidence in the worker's ability to improve. I think the correcting should be done privately and not where it can be heard by the other workers.—W. H. (*Canada*)

Private Correction Necessary

"Correcting Workers' Mistakes"
Pete & Bill, Oct., 1943

Dear Pete and Bill:

Workers should be treated with respect. Overseers who are quick to bawl out workers lose the respect of their men and inefficiency results. Harmony is the thing to strive for and with it you can accomplish much. When mistakes are made, the guilty party should never be bawled out in the presence of others. Talk to the man privately and explain everything necessary to

prevent a repetition of the mistake.

All workers should be taught and shown that mistakes in their particular department often cause extra work in other departments, resulting in "seconds," decreased production, etc., and thereby causing reduced profits to the company which in turn affects the pay check of each employee in the long run.

Practically all workers want to do good work and will cooperate under proper supervision. Workers who will not cooperate and persist in making the same mistakes should be dismissed. —C. O. (*Washington*)

Correct Mistakes in Private

"Correcting Workers' Mistakes"
Pete & Bill, Oct., 1943

Dear Pete and Bill:

I believe it is an unintelligent boss who bawls out a worker in front of another worker. First of all, the guilty party, aware of the presence of his fellow workers, doesn't listen, and their presence tends to make him more nervous at that particular time.

In my opinion, a person should be put "on the carpet" when he makes a mistake, but he should be called into the office of the boss and then corrected. Also, it should come from the boss alone and not all the other mill officials. The foreman should explain the correct way of doing the particular job so the worker will never make the same mistake again.

It is common practice in the mill for a foreman to bawl out a person just to show the person and the other workers who really is the boss. That boss would get more work done and fewer mistakes if he did his talking in his office to the ones concerned. The employees would learn more from their boss, and when there was something they did not understacnd they would ask him what to do. When they might see where they could make improvements, they would feel more free to tell him instead of just letting it go.

No one is infallible and everyone is entitled to a few mistakes, but never the same one twice. If the boss has done his job right, then it is the worker who doesn't belong on that job.—C.L. (*New York*)

No Vacations with Pay for the Duration

Vacations, Overhauling and Production
Pete & Bill, Sept., 1943

Dear Pete and Bill:

I have never thought vacations, with pay, were truly proper in many of the industries of the country, nor believed that management could well afford this outlay, in cash, for vacations each year, although most of the coal companies in my section have been doing it for some time.

I doubt if it could possibly be extended into textile plants, much as the plan would check, to a marked degree, absenteeism, which often develops into really difficult barriers, halting production—and bringing about a source of disruption between the employee and the management.

With the boys overseas giving their lives for the cause of Freedom, we should use every bit of our energies to make the most in production, as a lasting effort toward the successful conclusion of the war.

Really absenteeism should be cut to the extreme limit: and vacations, with pay might be discouraged, at least for the present.

Sometime later on, perhaps, an agreeable plan might be worked out whereby vacations, with pay, can be allowed.—E. C. W. (*Kentucky*)

LETTERS TO PETE & BILL are paid for when published, without regard to length. We use letters (not over 200 words) discussing material in this department or any other pertinent matter. Contributions of greater than specified length may be given consideration as articles. Suggestions for the Pete & Bill dialogue are also welcome and if used will be paid for. If these pages interest you—contribute something to them to interest others. Address PETE & BILL, Textile World, 330 West 42nd Street, New York 18, N. Y.

MEMORIES OF OLD MAN CARELESSNESS—*By Martha B. Pittenger*

NO. 11. FORWARD MARCH!

'Twas the day before Christmas, and all through the mill, not an accident prevailed, and then my big thrill —everyone was in the holiday spirit but me, for I was beginning to wonder if I would have anything at all to be gleeful over for that big day of the year. But I knew that when people are really happy they are more or less subject to getting hurt, because they are not thinking or watching. Who would be the first of the workers to make me happy?

Then I saw a colored sweeper going up the big alley of the card room. At first glance there didn't appear to be much of a chance for an accident, but then I looked at her feet! She had on an old pair of slippers, with the leather cut out at the toe. I couldn't much blame her for wanting her toes to be free since she walked all the time, yet, I was wondering how long those toes would be free from pain. As she went on her way, I spied a rough place in the floor. A splinter popped up, and ran into the side of her toe, and I heard her let out a scream of agony. I heard later that she lost three days from work as a result.

Her Christmas was spoiled, but mine was merry, even though I was rather ashamed on Christmas morning thinking about her being denied having a good time over the holidays. When I jotted that accident down in my book, I felt pretty sure that she wouldn't from then on let an old shoe or temporary toe comfort hinder her from marching forward in safety's parade.

Employee-Morale Boosters

Christmas Bomber "Spirit of Sylacauga"

Mrs. Isbell, mother of Robert LeFette Isbell, U.S.N., who was the first man to lose his life from South Talledega County in this war, recently christened a new bomber with the name "Spirit of Sylacauga." Her son, Robert, was lost off the coast of Newfoundland when the Pollux went down. Her husband, Mr. Isbell, is employed in the Eva Jane Plant of Avondale Mills at Sylacauga, Ala. Mr. and Mrs. Isbell have another son who recently joined the Navy and is now stationed in California.

Tubize Brings War-Work Appeal to Women

Tubize Rayon Corp., New York, has run a series of advertisements in consumer magazines appealing to women who may never have had industrial jobs to enter war work or essential civilian work and thus increase the country's effective man and woman power.

Paul V. McNutt, chairman of the War Manpower Commission writes as follows to Leonard F. Smith of Tubize: "The War Advertising Council has called my attention to three of your company's magazine advertisements which urge women to accept work in necessary civilian activities. I want to compliment you upon the excellence of the advertisements. They state the need and appeal for action in a constructive, dramatic way which undoubtedly will result in more women enlisting for war work and which should inspire other advertisers to follow your example of giving practically all your advertising space to this vital war campaign."

Knitter Opens Small Branches in Suburbs

The initial success of neighborhood production branches established recently by Globe Knitting Works, Grand Rapids, Mich., indicates the firm's solution of its labor problem, according to Gordon Pray, a company executive. With the labor shortage becoming critical, Globe decided to open production units in outlying sections of the city in an attempt to keep its output as near normal as possible. An appeal was made to the women who would not care to work in a large factory, who might not be able to qualify in the production schedule of a factory, but who would gladly work in their own neighborhood.

One neighborhood production unit is located in the north end community of Creston in a one-story building formerly occupied by a retail dress shop. Some 50 or 60 women are employed there completing, wrapping and packing garments which have been cut out at the main plant. Costs are running somewhat higher in the branches than in the main plant, but the company regards the extra expense in production as a sound investment in good will with the trade in that civilian production is thereby increased.

Absenteeism in Industry Near 40 Million Man Days in August

Absenteeism in August as a result of sickness, nonindustrial accidents, and personal reasons caused the loss of 39,550,000 man days in American industry, according to estimates based on the regular monthly survey of the National Industrial Conference Board. This figure is almost 4,000,000 man days greater than the 35,680,000 man days lost for the same reasons during July. In August women lost an average of 1.4 days against 1.3 in July, while men lost .7 days on the average, against .6 days in the previous month.

How Some Mills Remember Their Service Men

With a personal letter from T. H. Mueller, president of the company, every one of the 421 former employes of Julius Kayser & Co., New York, who is now in the armed services is receiving this year, as last year, a holiday gift of $25. In this way more than $10,000 is being sent to service men and women wherever they are, to give substance to the company's season's greetings.

Employes of Chatham Mfg. Co., Elkin, N. C., contributed generously to a fund for the purpose of sending each of the 385 former employes of the company now in the armed forces a Christmas box.

Tells Textile Achievements to Service Men

Rock Hill (S.C.) Printing & Finishing Co. has published a servicemen's book, which taking as its theme the phrase, "We make it—you use it!," tells the story of how the industrial army in the Carolinas' vast textile field works to produce the finest and most serviceable articles for the use of men and women in the armed forces.

Mills Set Up Pension Plan

Carolina Mills, Inc., with units at Newton, N. C., and Maiden, N. C., has instituted a retirement plan for operatives who remain in the employ of the company for at least five years. Retirement is at the age of 65, with payments into the fund being made by the company and the operatives. Operatives, who have been on the payroll six months or longer and are inducted into the armed services, will be given credit for the time served.

Marshall Field & Co., with mills at Spray, N. C., and elsewhere, is instituting a retirement plan which will provide income for employees of five or more years with the company when they reach the age of 65.

WLB Believes Wage-Increase Not Solution of Absenteeism

An increase in wages is not a solution to the problem of absenteeism in industrial plants, according to George W. Taylor, vice-chairman of the War Labor Board. In an opinion on the board's unanimous denial of a request by the Statesville (N.C.) Cotton Mills Co., for an attendance bonus plan whereby workers would receive extra compensation for perfect attendance for a 40-hour week, Taylor warned against "general wage increases thinly disguised as attendance bonuses."

"It is specious reasoning to say that 'more wages' is all that is necessary to solve this complex problem," Taylor said, adding that such an approach would be sure to result in "somewhat

higher wages without any real solution of the problem of absenteeism—a result incompatible with the wage stabilization program."

Good Safety Records Are Being Made

Trion (Ga.) Co. has established the best all-time no-injury record in the textile industry, with 10,495,544 man-hours.

The Roanoke, Va., plant of American Viscose Corp. has established a new safety record for the corporation of 4,471,000 man-hours or 237 days worked without a lost-time accident. The former corporation record, made by the Roanoke plant in 1942, was 3,209,000 man-hours or 161 days worked without a lost-time accident.

A record of 3,051,532 man hours continuous operation without any time lost because of accidents has been achieved by Bristol (Tenn.) Weaving Co. The record has been compiled since Jan. 19, 1940.

Russell Mfg. Co., Alexander City, Ala., leads its State-wide safety contest according to the latest report from the State Dept. of Industrial Relations.

Firestone Campaigns for Textile Workers

Because hundreds of thousands of desperately needed passenger car tires can not be made next year unless a shortage of manpower in textile mills is solved, Firestone Tire & Rubber Co. is recruiting workers through two unusual campaigns which feature an inspection tour of mills which discloses the machines made idle by a lack of operators, and a war products exhibit. The campaigns are in Gastonia, N. C., and New Bedford, Mass., and the result has been a steady increase in employment. In Gastonia, the lack of 300 workers prevented manufacture of enough cotton cord to make 20,000 tires a week. In New Bedford 550 workers were needed at the start of the campaign.

In a large local newspaper advertisement, the company invited citizens to "Be a Firestone war worker. Join the great army of patriotic men and women who turn out the weapons of war that will send the enemies of truth and freedom to everlasting defeat."

New Market for Cotton

Cotton plantations near Greenville, Miss., have a new trade outlet. The Washington County Chamber of Commerce reports the sale of 25,000 souvenir cotton bolls to soldiers at the Greenville airfield during the last year. Now they are seeking to purchase 20,000 additional bolls to fill the demand of army men wanting to send home "a touch of the South."

Letters to the Editor

Information Found Helpful

We wish to thank you for your reply to our letter in regard to avoiding holes in knitted fabrics. The information given in your report has been found most helpful in enabling our knitting department to produce more nearly perfect cloth, and we greatly appreciate the courtesy you have shown us.—W. Margolis, *San Francisco, Cal.*

Liked October Issue

The October issue of Textile World is the best issue you have put out in 15 years. I believe you want to know and should know when you are doing a good job. Of course, this is only a personal opinion, but I judge an issue by the number of articles I cut out for my permanent technical file.

The October issue has what practical mill men want; honest down-to-earth things that mills are doing all over the country. Although I read a whole page and get but one idea from it, I consider it worth while. I have read this issue from front to back. The articles I consider worth keeping are:

Parachute Fabrics, pages 65-68.

Place and Functions of the Designer, pages 70-72.

How to Make Blankets Warmer, pages 77-81.

To Improve Winding Efficiency, pages 80-81.

Defects in Jacquard Fabrics, pages 82-83.

How to Make Up the Loom Book, page 84.

Fabric-Weight Determinations, page 87.

More Data on Infra-Red, page 88.

Manual of Military Fabrics, pages 90, 91, 138.

Kinks and Shortcuts, pages 117-120.

Questions & Answers, pages 126-130.

You will note that several of these articles can't be separated because they are on the same page. I will appreciate you sending me another copy of the issue if possible. Also send a copy of the charts on synthetic fibers from the September issue.—F. S. Foster, *La Grange, Ga.*

From South America

In reviewing our records, we notice that our subscription to Textile World expired with the August issue, and we are therefore asking you to renew the same for another three years. We take this opportunity to congratulate you for producing such an excellent number month after month. The technical data and other information contained therein are always read with great interest by the technical men of our various textile departments as well as by the writer.—Stanley L. Schmitt, *Buenos Aires, Argentina.*

Commends Synthetic Fiber Tables

Thank you for the tear sheets containing the tables of various yarns which I received today. Textile World has certainly put a great deal of effort and work in compiling these figures, and I am sure they will be very helpful to everyone connected with the textile and chemical industries.—C. A. Lasky, *New York.*

Authors to be Congratulated

I wish to thank you for the tear sheets of the article "Keep Your Motors Running." I thought the article was one of the best I have seen published on this subject in any magazine; the authors are to be congratulated.—Fred D. Mosher, *Erie, Pa.*

Excellent Piece of Work

I wish to thank you for sending the Manual of Military Fabrics, Part VII. You are doing a very excellent piece of work.—L. S. Little, *New York.*

Contribution to War Effort

Your contribution to the War Effort in furnishing valuable data, is fully appreciated by this office.—H. S. Lippincott, *Army Medical Purchasing Office, New York.*

NEWS OF THE MONTH

Denim Reconversion. Twelve mills have been directed by WPB to reconvert from osnaburg and other bagging materials to denim.

What's Essential. A nationwide consumer survey is being conducted for the Office of Civilian Requirements by the Bureau of the Census, according to a recent announcement by WPB Vice Chairman, Arthur D. Whiteside. Census enumerators will visit 7,000 households to ask about the availability of 115 types of goods and services used in homes and on farms. Factual information on essential goods will result.

Restrictions Off Wool. On Nov. 19, WPB lifted all restrictions on the use of wool in the production of fabrics for clothing, drapery and upholstery. Evidence of adequacy of supplies had been accumulating in recent months. Actually the domestic clip has been stagnant, principally because of the Government's wool purchase plan, dealers say.

Cotton for Insulation. Cotton for temperature insulation of buildings may call for use of 175,000 bales in 1944 if present plans materialize. There are already seven manufacturers producing cotton insulation under Dept. of Agriculture specifications.

Rayon Makers to Cooperate. The five makers of high-tenacity rayon for tire cords are called upon by WPB to exchange technical information on properties, development, conversion and techniques. Collaboration must be available uniformly to the manufacturers and the armed services.

Rayon Chute Cut Not Civilian Gain. Sharp curtailment by the Government in contracts for rayon fabric for bomb chutes, in which 11,000,000 lb. of rayon monthly has been used lately, will not mean augmenting the civilian rayon supply appreciably because of greatly increased military requirements for rayon tire cord. At best, civilian uses may not be so limited as they would have been had the chute demand continued at its previous rate.

New Light Fastness Standards. Development of a new set of dyed standards for fastness to light has been announced by the American Association of Textile Chemists & Colorists. These standards which will be made available for distribution to the trade employ only two dyes to produce a range of 10, 20, 40, 80, and 160 hr. fastness to the Fade-Ometer.

Sees Tires Still Major Cotton Market. The cotton industry has the assurance of a rubber company official that tires will continue to afford a major market for cotton after the war despite increased use of rayon. John W. Thomas, of Akron, chairman of the board of Firestone Tire & Rubber Co., states that any loss of market due to the use of rayon would be offset by increased production of tires. He expects that cotton will continue to be used almost exclusively in passenger car and in small-sized truck tires, with rayon in heavy duty truck tires.

Hathaway to Convert. Hathaway Mfg. Co., New Bedford, Mass., plans conversion of its cotton goods production for sale in the finished state. Its rayon lining output, however, will continue to be sold in the gray.

Freezes Tire Cord Employment. The WMC has issued a directive to stabilize employment in the tire cord industry of Georgia, Tennessee, Alabama, and South Carolina. This gives the 14 plants affected a priority in labor recruitment and means to check turnover.

1943 Rayon Production Up 4%. Production of rayon in U. S. in 1943 will approximate 658,000,000 lbs., a new record, according to William C. Appleton, president, American Viscose Corp. This volume compares with an output of 633,000,000 lbs. in 1942 and 573,000,000 lbs. in 1941. The increase over last year, about 4%, is due chiefly to expanded production at Government request of extra-strength rayon yarns for use in military and synthetic rubber tires, self-sealing gasoline tanks, and fragmentation bomb and supply parachutes, and to slightly enlarged output of rayon staple fiber for civilian clothing requirements.

Refuses to Renegotiate. Spindale Mills have definitely declined to agree to renegotiation on Army and Navy contracts for the period ended Sept. 26, 1942 according to a letter from O. R. McGuire, attorney for the mills, to the Price Adjustment Board, War Dept. He challenges the constitutionality of the Renegotiation Act. He states the company's business is wholly with Reeves Bros., and that it is no more subject to renegotiation than is the grower of the cotton which went into the cloth.

Rayon Tire Cord Plant. Plans for establishment of a $2,000,000 rayon tire cord plant near Clemson College, S. C., have been announced by Governor Olin D. Johnston and Senator Burnet R. Maybank, of South Carolina, who stated that WPB had approved the proposal for the construction of the plant.

Soap Inventories Curbed. Textile mills are required to hold inventories of soap to a 45-day supply at the current rate of consumption, according to a recent interpretation of Food Distribution Order 86.

Cotton Carryover. On the basis of current trade estimates, the stock of cotton in all hands on July 31 next will be around 9,750,000 bales, according to the New York Cotton Exchange Service Bureau. Such a carryover would compare with 10,687,000 on July 31 last, and 10,640,000 two seasons ago. The 1944 carryover will be the smallest end-season stock since 1937, when the carryover aggregated only 4,499,000 bales.

Markets Hold Their Courses. Cotton goods have lagged because of mills unwillingness to sell far ahead. . . . Wood gods men see scant change due to lifting of wool restrictions. . . . Rayon gets scarcer for civilian uses, but may soon pass peak in this regard. . . . Hosiery is selling freely both at retail and in mill circles. . . . Underwear is still at grips with general yarn scarcity. . . . Outerwear improves; bathing suits brisk for 1944; sweaters well sold.

This and That. Maid of Cotton for 1944 will be named in Memphis on Jan. 24, 1944. . . . An offer to buy Quissett Mill stock at $105 per share has been made by Jacob Ziskind and is being submitted to stockholders. . . . OPA is regarded as certain to revise the troublesome hosiery regulation No. 339 before the end of the month. . . . Australia is producing textiles at 2½ times the prewar rate. . . . Lord & Taylor have introduced printed hosiery for girls and women to be worn with jerseys similarly printed. . . . Half-inch Nylon rope can lift a load of three tons.

QUESTIONS & ANSWERS

Spinning 30s Cotton Yarn

Technical Editor:

I should like to know if it is possible to spin 30s combed warp yarn by making a 55 to 60 grain sliver or 3 to 4 hank roving, and placing the roving directly in the spinning frames? In looking over our records of tests, I find that we have never tried such a combination, and I wonder if it is practical on a conventional draft frame with a light unweighted middle roller? It seems to me that the draft that is necessary would be way too much for making a satisfactory yarn on a conventional draft frame. (8947)

We believe it is feasible to make a good yarn going directly from the slubbers to the conventional draft spinning frame. On page 89 of the April, 1943, issue of TEXTILE WORLD, you will find the complete organization for processing the yarn in 36s. Since the draft will be 16.4 for 36s, it will be some less for 30s; namely, 13.6. Of course, the 36s mentioned is made on a long-draft spinning frame, but if you use a conventional draft frame with a special unweighted middle roll with 4.40 double roving and a draft of 13.6, you should get a satisfactory yarn. Probably you will need to have two processes in the drawing to get the evenness that you desire in the yarn. In addition, we suggest that you card the yarn from 5 to 7 lb., and at the most not over 7 lb. per hr.

Fulling and Finishing of Jersey Knit Goods

Technical Editor:

If I have a piece of cloth weighing 7 oz. raw (a 6 × 6 in. swatch before processing), how can I conclusively determine when it shall have reached the desired 8-oz. weight finished?

What is the best treatment for finishing worsted jerseys so that they will have a hard finish and yet eliminate elasticity or stretch. This question refers only to knit goods for garments: viz. sweaters, dresses, sport coats, etc. (8799)

We know of no way to handle a small 6x6 in. swatch of jersey cloth weighing 7 oz. per yd. in the gray, or grease, as it comes from the knitting machine, so as to bring it up to the equivalent or an 8-oz. finished jersey. In order to make an 8-oz. finished piece of jersey cloth from a 7-oz. piece in the gray so it will be "hard" and have a minimum of stretch or elasticity, it is necessary to submit it to an unusual shrinkage in fulling.

A typical procedure in finishing jersey cloth is the following: Full in a rotary fulling mill to a given shrinkage in length and width, predetermined according to the finished width and weight desired. After fulling, scour the cloth in a cloth washer to remove the oil used on the stock and the soap used in fulling. When thoroughly clean, the cloth is ready for the dyer, who dyes it in a regular piece dye kettle, still in the tubular form. One piece or as many as twelve pieces can be dyed at once.

After leaving the dyehouse, the fabrics is hydro-extracted in a centrifugal extractor. The cloth is then dried on a tubular dryer. The pieces are let down over a long wood-lined tube, drawn up over a spreading wire frame on which they are stretched to normal width as they are pulled up and rolled on a rolling device when dry. A needle is left out of the knitting circle as a guide for the dryer operative to help him keep the pieces running up straight, instead of spirally—spiral drying is bad for the cutter. As the goods are being drawn up, a blast of hot air is forced up through the tube; the amount can be governed according to the weight of the goods.

The next process is steam calendering. The fabric is run across a table, over a steam box with live steam blowing through the cloth, and over a spreader to keep the fabric out to width as it goes between iron rolls heated with steam and is rolled up on the top roll. The goods are both hot and moist when taken off the calender, and should be allowed to remain on the wooden roll overnight, or until thoroughly cold before being examined. If taken off while hot, they will curl and roll-in on the cutting table and make off-size garments.

A piece of jersey cloth coming from the knitting machine 7 oz. in the gray, would have to be shrunk in the fulling process around 7½ in. to the yard to finish at 8 oz. It would be difficult to obtain this excessive shrinkage and at the same time hold the width to a normal shrinkage. If it could be done, the result would be a "hard" jersey quite free from stretch.

A normal 8-oz. jersey should come from the knitting machine weighing about 9 oz. and be fulled between 3½ and 4 in. to the yard. This would produce a normal jersey without too much elasticity, and would make a garment that would hold its shape without being boardy and stiff. To obtain the yard shrinkage, what are known as yard marks are sewn in with white tape or string near the end of each piece, fastened in so they will not pull out. One string is sewn in on one end, a yardstick placed against it, and the next string fastened in at the other end. As the fulling proceeds, these two strings are drawing nearer to each other. The pieces are taken out and measured occasionally until the desired length is shown on the yardstick. The width is also watched. When the cloth is spread out on the floor and the yardstick laid across the piece, if it measures 27 in., that indicates that the full width of the cloth is 54 in. double.

Rayon-Wool Blends

Technical Editor:

Your expert opinion is sought on the following proposition: A blend of yarn is to be spun composed of 50% wool, grade 50's and 50% rayon.

The staple of the wool is about 6 in. average. There are two blends under consideration. Blend *A:* 25% viscose rayon 6 in. staple length, 25% viscose rayon, 4½ in. staple lengths and 50% of the above mentioned wool. Blend *B:* 50% 6 in. viscose staple and 50% of the above mentioned wool.

Which blend would you prefer, and what would be the advantage against the other blend? (8943)

In our opinion the second blend composed of two different lengths of rayon will be the better of the two.

We might mention that of the standard deniers offered in the market, 5.5 den. should be used with this wool. It has been found that there is a better distribution of the rayon through a blend when fibers of various lengths are included. This is caused by the ability of the drafting rolls to work on the individual fibers of different lengths rather than grab groups of fiber that may happen to be lying side by side. Any such group of fibers that were all one length would be acted upon by the draft rolls as a unit, and that applied regardless of the direction in which the stand is drafted. In this respect fibers of different lengths in the blend discourage the formation of these groups of fibers and naturally

result in a yarn of more even diameter.

It also should be noted that there is one rayon producer in this country who is offering a rayon that is cut in such a manner that the staple length in any one bale varies so that a staple diagram made from this stock resembles the familiar wing-shaped diagram produced by wool. This product is known as varied-length staple. The description that would best fit the blend of the above mentioned wool is a 3½ to 6 in. type. You undoubtedly will want to make some blends with this varied-length staple and compare them with the blend *B* mentioned in your inquiry.

Traveler Life

Technical Editor:

Can you give me any figures on the life of travelers on cotton ring spinning? New travelers we have been testing in our spinning room have not held up as well as older travelers previously tested and we are interested in getting some figures for comparison. (8923)

In one 240-hr. test on a 2-in. ring at 7,500 r.p.m. spindle speed, 25% of the travelers were replaced. In another 240-hr. test on 2⅛-in. ring, 20% of the travelers came off. In a third 240-hr. test, a traveler loss of 35% was observed. In a fourth test, with travelers changed every 144 hr., with a 2⅛-in. ring and 10,000 r.p.m. spindle speed, there was a traveler loss of 6 to 8%. Tests should be made on traveler replacement over different periods, and replacements should be made at intervals that will give the best results.

Braided Shoe Laces

Technical Editor:

We are interested in obtaining further information concerning braiding machinery specially suitable for the manufacture of boot and shoe laces. We should also like to know much more about the technique of manufacturing. We require this information for vital war purposes, as we must stimulate production. (8951)

Little has been written on the subject of manufacture of braided laces, as only a comparatively few companies are making these products. Below we are giving you some data on the subject. Each braiding machine company manufactures various sizes of machines. For example, one company's machines are listed as 16s, 24s, 32s, 44s, 48s, 64s, and 72s. These sizes correspond to the number of carriers, or bobbins to be run on the machine. The size of the machine installed will depend, to a large extent, upon quality and texture of the laces which you desire to manufacture.

The yarn used depends upon the quality of the laces desired. Yarn sizes most commonly employed are 16/1, 20/1, 26/2, 30/2, 36/2, 40/2, and 50/2. The yarns may be unmercerized cotton, mercerized cotton, or glazed. There may be used 1, 2, or 3 ends on a single bobbin. Yarns must be spooled on a special bobbin, governed by the make of the braider used. Shoe laces may be made from undyed yarns and then dyed after braiding, or they can be made from dyed yarns. Other machines employed in making shoe laces are as follows: Spooling machines to convert the yarn from tubes to proper bobbins; a skein winding machine for putting the braid in proper form for the dyer; and a machine for converting dyed braid from skein to a form suitable for cutting. Still other equipment necessary is an automatic cutting machine to cut the braid to any desired length and a tipping machine for applying the tips to the laces.

Making Larger Picker Laps

Technical Editor:

In our card room it seems as if we might increase the yardage in our 14 oz. lap to the point where the largest possible diameter lap is made, thus reducing doffing time at the pickers and creeling time at the card. I would prefer to run more yards per lap than to increase the ounce lap, as I believe a better sliver will result. What are the factors that limit the lap size and what is the largest diameter lap that is practical to use on a standard cotton card? (8948)

Mill tests indicate that the size of picker laps is governed by factors that exist after the laps leave the pickers. Generally, larger laps than usual are not too much of a burden to the trucker, but many times these trucks are of such construction that laps of longer lengths will be needlessly torn or damaged in handling or racking, thus causing an extraordinary amount of waste.

Picker frictions must be in the best of condition to get the proper density and texture so that tightly wound, compact laps can be handled satisfactorily.

Cards or lap trucks can take a lap up to about 22 in. in diameter; thus a practical limit exists. Furthermore, laps loosen-up or grow in diameter after leaving the picker, which means that the lap must come from the picker less than 22 in. in diameter.

In general, 14 oz. laps are limited in length to some 60 to 64 yd., but the general practice is to run them 51 to 56 yd. A lap of 58 to 60 yd. would be advantageous, but this will require enlarging the lap trucks. This 60-yd. lap will weigh about 55 to 56 lb. gross. If it is handled properly, less waste will be made. Longer laps within the limits prescribed can improve the work at the pickers and cards by reducing the frequency of doffing and creeling, and the number of piecings in lap or sliver.

Reediness in Gray Cloth

Technical Editor:

The enclosed swatch is a gray cloth made with combination yarn. It is a stock type 150x100 combination thrown 14 turns, twist on twist. We have made various constructions of cloth similar to this, and invariably have reediness in the fabric. Will you please advise us as to the cause and remedy of this condition? (8949)

It is difficult to prevent reediness in this type of fabric, due to its open construction. It would possibly improve the appearance of the cloth somewhat if the yarn did not lie so flat. Of course, this can be overcome to some extent by shrinking the cloth more during finishing. We also believe that if you can increase the turns of twist per inch up to, say, 21, it will close the appearance a trifle. Another means of achieving the same result would be to reed one in a dent, using a reed as fine as is necessary to obtain the same ends per inch. Sometimes using different twists in warp and filling will help to eliminate the condition.

Smoky Yarn at Spinning

Technical Editor:

We have been troubled by smoky or dirty yarn at the base of our yarn package on the spinning, and we use a regular warp wind. While we do not have a modern air conditioning system, but realize that it can stop this trouble. We cannot install such a system. Could you suggest a way to stop this condition? Our yarn is sales quality and we often get complaints on this score. (8953)

Smoky yarn can be eliminated by a modern air conditioning unit with air cleaners, of course. Since you cannot obtain this equipment now, we believe you can overcome your difficulty by changing the wind in spinning to reverse warp wind. This can be done by changing your present builder mechanism to start with the shortest stroke and end with the longest. By making this change you cover up each layer of yarn on the bobbin as it is built. The bobbin will contain the same amount of soot, but it will be so distributed that it will not be noticeable. On regular wind, the inside layers are exposed for a longer period and accumulate more soot which will appear on that portion of the yarn.

MILL MEN'S ROUND-TABLE

With meetings of operating executives curtailed because of the war, there is a definite need of a meeting place where mill men can discuss their problems among themselves. The Mill Men's Round Table is designed to supply this need. It is open to all readers for discussion of any and all subjects relating to mill management and operation. Bring your problems to the Round Table. Give other mill men the benefit of your experience, and get their ideas in return. To encourage frank and open expression of ideas and opinions on controversial subjects, names of contributors to the Round Table will not be published, but will be held confidential, if so requested. However, source of contributions must be identified as evidence of good faith and to permit payment for items published. Address contributions to: Editor Mill Men's Round Table, TEXTILE WORLD, *330 West 42nd St., New York. Opinions expressed in this department are those of the writers and do not necessarily reflect the opinions of* TEXTILE WORLD.

Slasher Blankets

This is in answer to the inquiry by "H.G." in the October issue about the use of cotton slasher blankets.

We are the originator of this type blanket and have been running such a blanket since June, 1942. Our plant operates 90,000 spindles and 2,500 looms weaving cloth ranging from narrow light counts containing 1,500 ends up to wide heavy constructions with 5,600 ends. We operate two shifts of 12 hr. each on seven slashers and at the lowest possible estimate show a savings of $500 per slasher per year. On top of this, there are a number of other savings made on the slasher itself by reason of the cotton blanket giving less trouble and less frequent changing.

The poor performance of the wool blanket led us to try out the cotton blanket. Where a pre-war wool blanket might last as long as 350 hr., we found it a rarity for the 1942 blanket to last 200 hr. The wool blanket required plenty of petting to extend its life, and during this time gave a lot of trouble. Streaks in the sheet of warp, hard size made at the squeeze rolls and short doffs were frequently seen. To avoid sizing too heavily the new blanket had to be covered with several layers of light-weight cotton cloth. After a few days breaking-in time, this cotton covering could be removed and the wool blankets normal life begun. At frequent intervals it was necessary to stop the slasher to trim off the end of the blanket as it became frayed. This is a job requiring two men. It takes place over the boiling-hot contents of the size box and is one of the most disliked chores in the slasher room. Grasping the end of the blanket and scorching one's fingers with hot size while one breathes in the hot fumes arising from the size box is not a pleasant task—all this taking place while one is stretched in an uncomfortable and awkward position, cutting away at the blanket, then combing it out to eliminate lap marks. No wonder our slasher operatives heartily favor the cotton blanket which practically eliminates this operation.

The continuous trimming of the wool blanket resulted in a reduction of its length, thus reducing the cushion and causing a gradual decrease in the amount of size added to the yarn. From this, it is easy to see that when the wool blanket was new, the size added was at a maximum, from which it dwindled until the blankets life was ended. Our tests have shown the cotton blanket to have a very uniform size percentage in the yarn over the entire period of its life.

The construction of our early cotton blanket was as follows: 60 in., 72x19, 0.61 yd. per lb. The warp was 30s and the filling 1.50s. After inspection, the cloth was sent to the slashers where 5 yd. was placed on the first squeeze roll and 10 yd. on the second. Due to the thickness of the fabric, we used a few yards of shade cloth goods as an outer covering. This eliminated lap marks and gave a better feel to the warp. We ran a number of tests on yarn slashed from this cotton blanket compared to yarn from the wool blanket. None of these tests proved unfavorable to the cotton blanket and we therefore changed over all seven of our slashers.

At the present time we are using a cotton blanket made of 1.50s warp and 1.50s filling, 62 in. in width. This cloth has been fleeced on one side and has shown itself to be an improvement over our earlier fabric. For one thing, we now use no outer covering on the blanket, which makes its operation more simple, while at the same time it gives a smoother hand to the warp. Fleecing the cloth has given us a better and longer lasting cushion. This latter quality does not yet equal the cushioning property of the wool blanket, but is helpful. We use a 15 yd. blanket on our finisher or second squeeze roll; and whenever we wish to improve the cushioning quality or the blanket, we unwind a few yards, soak it thoroughly in a stream of water, rewind, and put to work with a minimum loss of time. Over the week end it is also possible to remove the blanket and leave it soaking in water. We do not do this. Our practice is to wash off the squeeze rolls when they are lifted from the lower copper rolls when winding out for the week end. On Monday morning we run back several yards and soak thoroughly in a stream of water from the hose pipe. This renews the cushion and no further attention at this time is needed.

On a woolen blanket the fabric becomes discolored and stained during its relatively short life. However since it is quite necessary to trim the blanket

(*Continued on page* 130)

FREE FOR THE ASKING

READERS interested in literature reviewed on this page may secure copies by using time-saving coupon on other side of this sheet. Mark what you want on it and send it to Textile World, 330 West 42nd St., New York 18, N. Y., being sure to give your name and company connection.

1. Good yarn is made in the picker room, is a statement that appears in an article entitled, "Picker Room Practice Sets Quality Standard for Finished Yarn," appearing in the October issue of the *The Traveler*, published by Victor Ring Traveler Co. Picker maintenance is discussed in this article and also included is a list calling attention to the various parts that should receive constant attention. Types of beaters used, the setting of beater blades and other adjustments are discussed.

2. Getting the Most from Winding, No. 41 of a series, published by Universal Winding Co. discusses special tools used on the roto-coner. The relationship between the cone holder or tooth holder and the rotary traveler is discussed and instructions contained on how to make these settings. The builder cam lever gage, spindle bearing adjuster wrench, slub catcher wrench and the MacColl slub catcher clip are all items that are covered in this issue of the series.

3. "Theory and Practice" is the title of an article appearing in the October issue of *The Houghton Line* in which the use of mineral oils in knitting plants and in the cotton industry as well as the woolen industry are discussed. It is stated that any product of an oil nature which contains 50% or less of unsaponifiable oil, combined with the balance of saponifiable oil or a proper type of emulsifying agent offers little difficulty in removal by a normal scouring process.

4. Final color value that is obtained on dyed materials does not depend entirely upon the amount of dyestuff that is present, according to an article in the November issue of *Dyelines and Bylines*, published by Calco Chemical Division of American Cyanamid Co. This article offers some interesting observations and states that many of the spots on the finished cloth which are thought to be variations in dyeing are often due to physical fiber defects.

5. Draper at war is covered in the October issue of *Cotton Chats*. A reproduction of an article that appeared in the *Boston Sunday Herald* describes the production of the 75 mm. pack howitzer by Draper Corp. Numerous photographs are shown illustrating this gun in actual operation on the various war fronts and also included are those showing portions of the gun being manufactured in the Draper Corp.'s Hopedale plant.

6. Use of an inserted eye heddle in the manufacture of heavy duck for the armed forces is discussed in the November issue of *The Howard Way*, published by Howard Bros. Mfg. Co.

7. "Textile Workers are War Workers" is the title of an article appearing in the October issue of *The Pioneer*, published by the Niagara Alkali Co. In this article it is pointed out that it takes $164.09 to clothe a new soldier and to keep his uniform in fighting trim for one year. Major General Gregory, Quartermaster General of the Army is quoted as stating that textile workers have proved themselves war workers in the finest sense. They are producing goods that are just as essential to our Army as other workers making planes and guns.

8. Research covering belt drives is discussed in the September-October issue of *GraKnight Life*, published by Graton & Knight Co. Illustrations are shown and descriptions contained covering research conducted in various types of belt drives, ranging from flat belt to V-belt.

9. "Textiles Go to War" is the title of an article describing the part textiles are playing in the present conflict. It is stated that textile processing is one of the behind the scene industries in this war. This article appears in the No. 4 issue of *Steel Horizons*, published by Allegheny Ludlum Steel Corp.

10. "Dyed Cotton Textile Items for War Use," is the title of Technical Bulletin No. 632 offered by Calco Chemical Division, American Cyanamid Co. This bulletin lists important government procurement agencies, important government specifications, equipment required for various processes, fabrics which must be processed in open width and those which can be processed in rope form and basic procedures are given for the dyeing of these materials, cotton yarns, thread and raw stock.

11. The automatic filling bobbin winder, known as the Whitin-Schweiter, is discussed in two bulletins offered by Whitin Machine Works. The first bulletin answers such questions as how this automatic filling winder works, what provisions are made for adjustments, its production and describes various special features. The second bulletin contains instructions for adjusting the Whitin-Schweiter automatic filling bobbin winder and lists component parts according to manufacturer's numbers.

12. "Getting Down to Earth on Post-War Work," is the title of a 29-page booklet announced by Corrigan, Osburne & Wells, Inc. Changing over to meet opportunities in this post-war era imposes on all business men a strong obligation to do this job thoroughly. R. H. Wells, in this booklet, calls on business men to speed action on war-peace conversion as he sees a new prosperity era. Concrete programs must replace theory or we will risk set-back during this period.

13. Textile applications of metallizing are listed and numerous photographs showing the actual metallizing operations of textile equipment such as sand rolls, loom let-up rolls, loom crankshafts, etc. are covered in the Mogul Metallizing Process and Equipment Catalog, being offered by Metallizing Co. of America. Several pages are devoted entirely to textile applications of metallizing in this catalog and much useful information as to the various types of metals suitable for textile use is included.

14. "What Makes a Grease," is the title of a booklet offered by Sun Oil Co. This booklet describes the various characterists of such greases as adhesive pressure grease, gun grease, pressure system grease, roller bearing grease, etc.

15. "Towers of Triumph," is the title of a 44-page booklet issued by Dayton Rubber Mfg. Co. in which is given in chronological order the story of synthetic rubber. At the back of this booklet are

illustrated various applications of synthetic rubber of special interest to textile men. One of the uses of synthetic rubber given is for roll covers for use in spinning.

16. A steel hardening solution is described in a folder called Steel-temp, published by Steeltem Chemical Co. Use of this hardening solution for making cutting tools last longer is described and working instructions for the use of this solution are contained.

17. Industrial maintenance paints are described in a new catalog issued by American-Marietta Co. Product descriptions and technical data are contained so as to permit a purchasing agent to plan paint requirements and know the characteristics of drying, coverage and application.

18. Electric car spotters obtained in vertical-capstan units of 5,000 and 10,000 lb. starting pull capacity are described in booklet No. 1992, offered by Link-Belt Co.

19. Textile mill purchasing agents and master mechanics should have a copy of the Stock List and Reference Book No. 1, issued by United States Steel Supply Co. Practically all types of steel beams, channels, angles, plates, sheets, etc. are listed along with technical data such as width per foot, depth of section, and stock length. Other items such as drill rods, alloys, tubes, rivets, bolts, welding rods and accessories, chain hoists and belting are covered.

20. "Training Women for War Work" is the title of a booklet issued by the Bureau of Training, War Manpower Commission in which methods and suggestions for extending work and jobs for women, which until recently were performed exclusively by men, are outlined.

21. Finishing equipment and accessories are described in a number of circulars offered by Birch Brothers, Inc. Circulars are available on an adjustable vacuum extracting box, simplified power perch, a single roller ball bearing scutcher, "Coronation" chain stitch railway sewing machine, the "Excel" portable and chain stitch, foot power sewing machine and the four burner horizontal singeing machine.

22. Violite luminescent pigments are discussed in a 26-page booklet compiled by Rhode Island Laboratories, in which various types of phosphorescent luminous pigments, fluorescent pigments and radium active pigments are discussed. The color of the pigments and their characteristics under various types of light are included.

23. Speed reducers are discussed in catalog No. 643, offered by Stephens-Adamson Mfg. Co. Various types of speed reducers are described along with such pertinent information as horsepower, feed, speed and V-belt motors.

24. Textile chemists will find technical data on Lamepon A, a surface-active agent which is a condensate of hydrolyzed protein and fatty acid radicals useful. A circular containing much information as to how this may be applied in cotton, rayon and wool processing has been made available by Chemical Marketing Co., Inc.

25. "Modern Maintenance Methods," is the title of a booklet offered by A. C. Horn describing methods that may be utilized in the maintenance of good floor surfaces. Types of floor such as wood, linoleum, rubber, concrete and tile are discussed.

26. Flexible rubber buckets for handling acids, corrosives and other liquids are described in Catalog Section 9425, issued by B. F. Goodrich Co. Such equipment should find numerous uses about textile dyeing and finishing plants.

27. Tall Oil is discussed in a 23-page booklet issued by Industrial Chemical Sales Division, West Virginia Pulp and Paper Co. Use of this oil for textile scouring is discussed and it is stated that it has proved effective in scouring wool, rayon and cotton goods. Uses of this oil in other industries, aside from textiles, are also covered.

28. Textile mill executives will find the two booklets being offered by The Alexander Hamilton Institute of particular value and interest to them. The first booklet is titled "Forging Ahead in Business" and the second booklet is titled "How to Prepare an Engineering Report."

29. Industrial power trucks for use in handling materials about plants are described in a 76-page catalog issued by Yale & Towne Mfg. Co. A separate section in the catalog is devoted to the workings of the War Production Board's Limitation Order No. L 112, as applied to industrial trucks.

30. An "Introduction to Postwar Planning," is the title of the first of a series of projected reports on the subject of postwar planning being offered by Policyholders Service Bureau, Metropolitan Life Insurance Co. Based on material developed from 50 selected companies that have already inaugurated postwar planning programs, the survey has uncovered two distinct types of thinking. This bulletin should prove valuable to all textile mill executives.

31. "Packaging and Handling of Air Cargo," is the title of a 10-page booklet being offered by Air Express Division, Railway Express Agency, and contains much useful information on the packaging of materials to be shipped by air express and why such shipment is of value under present circumstances.

32. Calendars for the year 1944 featuring weekly calendar tabs containing giant weekly dates are being offered by Frederick Post Co. The overall size of this calendar is 15¾ in. x 24½ in. Each weekly sheet contains much technical information that will assist engineers and draftsmen. Charts on wire and sheet metal gages, etc. are among the items covered.

PASTE IT ON A POST CARD

This mailing coupon is a convenient size to paste on a penny postcard. **Circle the numbers of the catalogs you want** which correspond to the numbers on the descriptive paragraphs. Fill out the coupon **legibly** and **completely.** Paste it on a postcard, or put it in an envelope if you prefer, and mail it to Textile World, 330 W. 42nd St., New York 18, N. Y.

MAILING COUPON

TEXTILE WORLD,
330 West 42nd St., New York 18, N. Y.

I have circled below the catalogs I want, as listed in your December, 1943 Catalog Insert.

1	2	3	4	5	6	7	8	9	10	11
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My Name..... Title.....
(PLEASE PRINT)

Company.....

Street..... City & State.....

Results at Avondale

(*Continued on page 68*)

get exclusively the employees' viewpoint.

For the same reasons, we do not have the committee meetings in the superintendent's office, but hold them in one of the club rooms.

Once a week each superintendent has a meeting with his supervisors and second hands to discuss problems that have arisen in the mill. This is strictly a management meeting, but the superintendent brings out matters that have come up in the committee meetings and also matters that committee members have brought individually to the attention of the supervisor and superintendent outside the committee meetings. Many times during the month, the supervisor and the superintendent handle and clear up numerous things that the committee members bring to their attention and that are not brought to the attention of the committees as a whole. We believe this is one of the best ways these committees function, because the committee members feel close enough to the supervisors and superintendents to go to them with many of their problems before the regular montthly committee meetings.

RESULTS ATTAINED. The General Employees' Committee and the Employees' Executive Committee are a great help to the management in keeping it posted on sickness and absenteeism in the different departments, especially among employees who do not live near the mill. We have a large number of employees who come several miles to work, and the committee members report to the supervisor and the superintendent cases of sickness or other causes of absenteeism. Once each month our supervisors visit some of these employees and make a report to the superintendent.

Along this same line, our committees played an important part in helping us work out the transportation problem of our employees who live a good distance away from the mill. They helped arrange meeting places for the employees so that the bus could pick them up. They gathered names of employees who had trucks and other cars which could be converted into conveyances that would carry eight to ten employees to work. They also helped work out the assignment of employees to specific conveyances.

Another piece of good work which our committees accomplish is support to our Federal Credit Unions, which

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QUALITY
AND
SERVICE

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CLINTON, IOWA

Sprayed metal makes 1 pound do the job of 10!

METCO Guns apply critical metals only where they're needed!

WHY USE high carbon or alloy steels for machine elements — when thin, sprayed *coatings* of these and other metals on low carbon steel or iron will give equivalent wear? Why diminish stock piles of bronze, aluminum, or stainless steels — when adequate corrosion resistance for forgings and castings of *any* analysis can be obtained by spraying a few thousandths of the desired metal?

METCO Metallizing Guns are conserving thousands of tons of critical metals daily — both in the actual production of parts and equipment and in their maintenance. In many plants they have practically eliminated replacements. Technique is simple! Operators, male or female, can be trained in a day or so. Two types of Guns meet *your* price and priority needs! Write for details now!

METALLIZING ENGINEERING COMPANY, INC.
38-26 30th Street Long Island City 1, N.Y.
In Canada: B. W. Deane & Co., Ltd., Montreal

Get Savings Like These with Metco Guns

RECORDS from a number of typical plants, using METCO Guns regularly in production or maintenance, show that a single pound of sprayed metal conserves an average of more than 10 pounds of the critical materials which would ordinarily be required. Individual instances of maintenance jobs on large machine parts reveal savings as high as 70 pounds for each pound of metal sprayed.

METCO
REG U S PAT OFF

WORLD'S FINEST METALLIZING EQUIPMENT

we have operating at all plants and which have been very successful.

We have a hospitalization and group-insurance program in our mills; and these committees are very helpful to us in explaining this program to other employees, especially employees who have just come to work for us.

At our annual spring inspection, when we visit all of our plants, we always have a group from the employees' committee as a part of our regular inspection party. In this way they can see what is being done in our other plants and can associate and talk with the committees of the other plants.

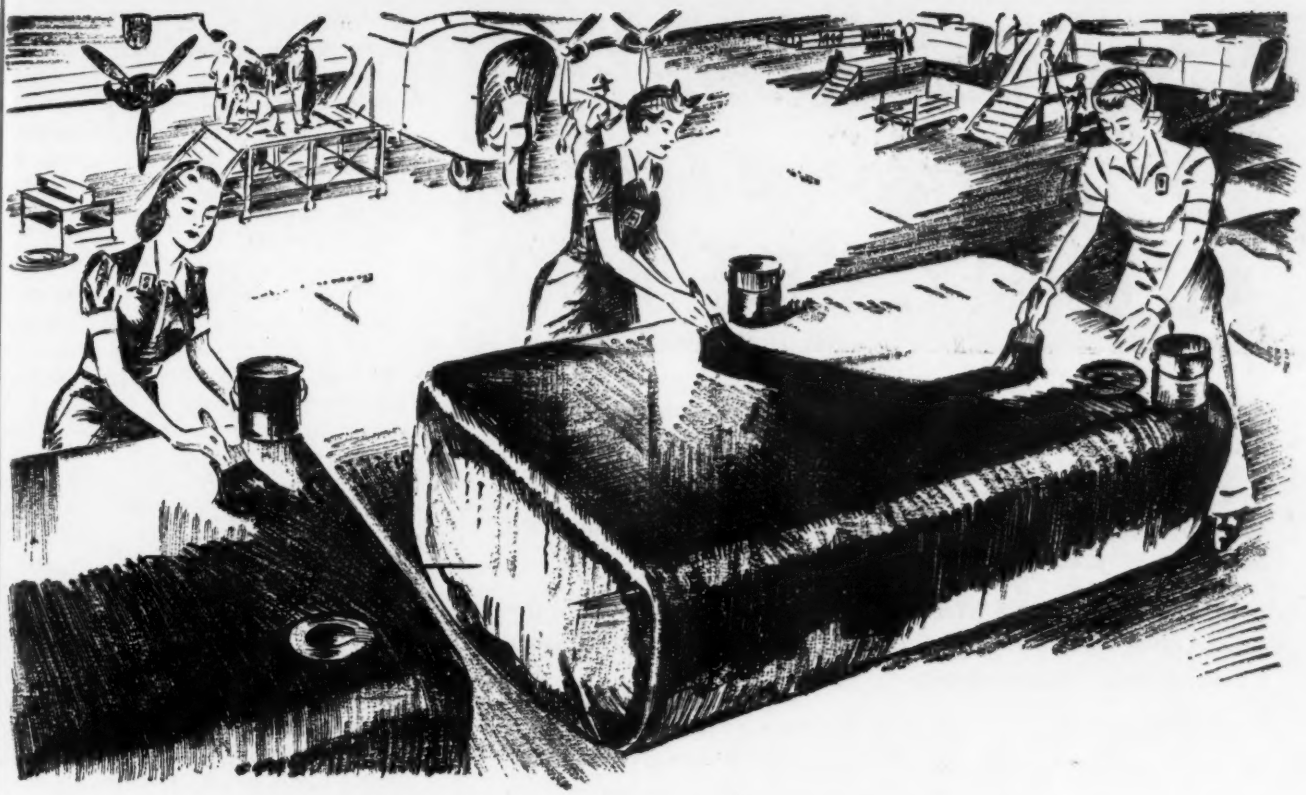
Several times a year we have meetings with our committees at which we show moving pictures on safety or pictures put out by the government on labor relations or which show the part our nation is playing in the war. At least once per year we arrange for our Congressman and Senators to talk to our committees about the problems our nation is facing and the problems that they, as our representatives, are confronted with in our national government. Members of the committees carry this information back into the mills and pass it on to their friends and fellow workers.

SOME EXPERIENCES. Perhaps it would be interesting to outline a few of the things that have come up in our Labor-Management Committee meetings.

Recently a committee member from one of our yarn mills brought up at a regular monthly meeting the subject of warper production. He stated that he thought some of the winders were cutting the yarn, causing the ends to break back and stop the warpers, resulting in lost production. He also said that he thought we could get more production by running the yarn on smaller cones. He based this on the fact that the large Jumbo cones, while they held more yarn, so crowded the warper creel that, when the ends of yarn were pulled off the cone, they ballooned into each other, causing excessive stops of the warper. We are now making a test on the recommendation made by this employee.

Another good suggestion which came out at a committee meeting was in a mill where we are now refloorings the card room. This member suggested that, if it were possible, after we had refloored the card room, we should widen the space in between the cards in order to help the operators in pushing the cans out. We intend to follow this suggestion when the card room has been refloored.

As we have stated before, one of the duties of the Employees' Executive



"Wrapping up" a pilot's dream . . .

Flyer's need plenty of protection! Protection that starts in factories here at home. And cotton has helped engineers solve one of the most important plane protection problems.

Bullet-proof, self-sealing gasoline tanks sound like a pilot's dream. But they're being installed in the wings of bombers and combat aircraft.

These fuel cells bear two thicknesses of specially-treated cotton fabric weighing three pounds to the square yard. Interlined with a rubber-impregnated fabric, bullet holes seal themselves automatically, preventing fire and leakage.

Butterworth Machines play their part in the battle of production at every step in the wet end of textile finishing—bleaching, boiling-out, drying, calendering, dyeing.

The cooperation of Butterworth Engineers is freely offered to every mill seeking to achieve increased productive efficiency . . . or to repair or replace worn-out or obsolete equipment.

All of our facilities not required for Ordnance production are available to help you solve your present finishing problems and aid you in your post war plans. Let us serve you now.

H. W. BUTTERWORTH & SONS CO.
Phila. 25, Pa. Serving Textile Industry since 1820
Offices in Providence, R. I. and Charlotte, N.C.
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***64%**

of equipment now in use in the wet end of textile finishing cannot operate at a profit in competition with modern machines.

*Proved by Research

Butterworth

PRODUCING GUN MOUNTS FOR THE UNITED STATES ARMY

Here's how to make your present Valves LAST LONGER..SERVE BETTER

● Experience shows that even the best valves last longer and serve better if given periodic inspection . . . and repairs when necessary.

Today when new valves and even repair parts are scarce and require high priorities, it is more essential than ever to take good care of your present valves.

The Lunkenheimer "N-M-D" Valve illustrated is typical of the simple, rugged, easy-to-maintain construction that distinguishes Lunkenheimer design practice.

Thus maintenance men working with these valves find them easier to keep fit and on the job. . find that Lunkenheimer valves will last longer and serve better with less attention and time out for repairs.

Use the complete facilities of Lunkenheimer distributors.

Simplicity of Design Means Easier Maintenance

Disc can be renewed in a jiffy. Simply unscrew locknut from disc holder, remove old disc and insert new one—reassemble and the valve is ready for use. Or better still, keep on hand some spare disc holders complete with discs — slip a disc holder and a new disc on the stem and remove the old disc from the holder later.

LUNKENHEIMER VALVES

Committee is to cooperate with the supervisor in appointing his committees on safety, waste, etc. These committees meet once each month with the supervisor of their department and discuss matters which come within the scope of their responsibilities. Below we are quoting from the report of a recent meeting:

"It was suggested that the safety committee talk with the dry-can men about the use of a ladder which would make it unnecessary to climb on the machine. It was also suggested that the floor be repaired at the checker's desk. An order was turned into the carpenter for this repair.

"The waste committee suggested that the girls cut the cloth close to the seams and save every inch of cloth possible. This will also save time in bundling the rags.

"The cleaning committee thought it best to set aside a cloth bin in which the press men could stack the boards and rope. Keeping these boards off the floor will keep the room nicer.

"The supply committee suggested that a better grade of burlap be used. The present burlap is not strong enough to hold when it is sewed tight enough for stenciling.

"The oil committee suggested that a place be provided for the oil drums as a means of keeping oil off the floor. It suggested that the old pump be repaired or replaced.

"All the committeemen agreed to do everything possible to get the cloth and finishing room in order for Sept. 15."

•

More Mills Get "E" Award

Since last reported in these columns the following textile mills have received the Army-Navy "E" award:

Appalachian Mills Co., Knoxville, Tenn.
Mt. Hope Finishing Co., N. Dighton, Mass.
Springs Cotton Mills, Lancaster, S. C.
Bath Mills, Bath, S. C.
Wm. E. Wright & Sons Co., West Warren, Mass.
Columbia Mills, Columbia, S. C.
Norwich Knitting Co., Norwich, N. Y.
Alexander Smith & Sons Carpet Co., Yonkers, N. Y.
Tennessee Eastman Corp., Kingsport, Tenn.
Borden Mills, Kingsport, Tenn.
Am. Viscose Corp., Front Royal, Va.
Callaway Mills, Milstead, Ga.
Palmetto Cotton Mills, Palmetto, Ga.
Callaway Mills, Manchester, Ga.
Fleetwood Craftsmen, Fleetwood, Pa.
Rochester Ropes, Inc., Culpepper, Va.
Burlington Mills, Burlington, Wis.
Blackstone Plush Mills, Clinton, Mass.

LET US SUBMIT THE EVIDENCE

to prove that....

EIGHT months ago, the ad reproduced here announced SCOURITE "S", one of an extensive line of SCOURITES—new type textile detergents developed in the Quaker Research Laboratory.

Since that time a number of processors of textiles have investigated these SCOURITES and have incorporated them into their processing.

Many of them have been good enough to release processing data and their evaluation of the performance of these products in their work.

This material, together with our Technical Data Sheets descriptive of the various SCOURITES, has been collected into a handy file folder and will be sent without obligation to any mill executive or overseer upon receipt of filled-in request form below.

When you have read of the excellent results others are obtaining with our SCOURITES — or when you have put them to the test in your own mill—we are confident you'll agree that here *is* your answer to wartime detergent problems.

Here's Your Answer to

WARTIME DETERGENT PROBLEMS

Quaker Chemical Research Produces a Broadly Effective Material to Meet Today's Needs

CHEMICAL RESEARCH—like that carried on day after day in the Quaker Laboratories—is accomplishing wonders in overcoming wartime shortages.

Many times newly developed alternates prove vastly superior to previous standard products. Consider the case of textile detergents . . .

Today, the available quantities of synthetic detergents are very limited, so textile men face the prospect of going back to conventional soaps . . . with their many imperfections.

New Type Detergent Needed

Some months ago we foresaw this possibility and sensed both the need and the opportunity for a *new type* of detergent. So the problem was turned over to our research staff with instructions to

1. Produce a material that embodies the best characteristics of a good synthetic detergent . . . at the applied cost of soap.
2. Produce this from raw materials that are available in large quantities.

In appraising the first part of this problem, we knew the principal imperfections of soap are slow wetting-out, difficult rinsing and poor stability to hard water. These objectionable features were overcome.

New Solvents Utilized

Since the advent of synthetic detergents, the solvent principle of cleaning has been neglected. So our laboratories blended a combination of new type solvents into this product to obtain maximum scouring effectiveness on oxidized oils, waxes, pectinous matter and other hard-to-scour materials.

A Corner of the Quaker Chemical Research Laboratory

New Product Broadly Effective

The resulting product — called SCOURITE "S"—amply meets the rigid requirements set for it: SCOURITE "S" is made from non-critical raw materials . . . is powerfully effective, yet very mild . . . is economical to use . . . wets out quickly . . . turns out a first class scouring job . . . works at low temperatures . . . gives rapid results . . . does not affect colors . . . rinses freely . . . and insures level shades in dyeing.

Performance Proved in Use

Although our extensive equipment enables us to simulate mill conditions in our laboratories, we always insist that a new product be proved in actual production. So this new SCOURITE "S" was turned over to our Quaker Textile Process Engineers with instructions to "give it the works." They did . . . and from their reports we are satisfied that it does well the job for which it was created.

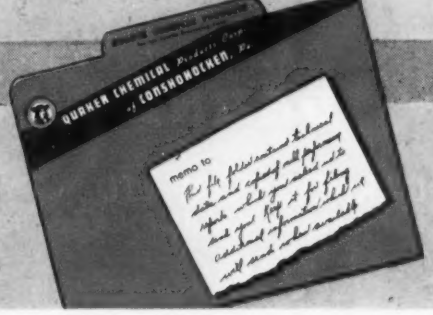
This product has proved excellent for—Scouring . . . Fulling . . . Soaping Off . . . Kier Boiling . . . Boil Off . . . and many other operations.

You can now obtain complete technical data on SCOURITE "S" upon request . . . and one of our Textile Process Engineers will be happy to sit down with you and talk about its place in your processing. Just write or wire—

QUAKER CHEMICAL PRODUCTS CORP.
CONSHOHOCKEN, PA.

OTHER PLANTS IN CHICAGO AND DETROIT
WAREHOUSE STOCKS IN PRINCIPAL INDUSTRIAL CENTERS

Send for your folder of Technical Data



QUAKER CHEMICAL PRODUCTS CORP., CONSHOHOCKEN, PA.

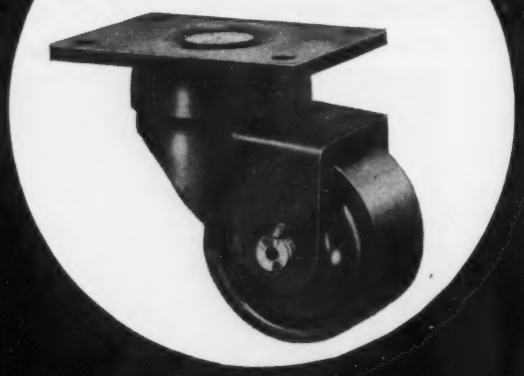
☐ Send me folder containing Processing and Technical Data on SCOURITES.

☐ You may have a QUAKER TEXTILE PROCESS ENGINEER contact me to arrange a test run in our mill—without cost or obligation to us.

Name_____ Position_____

• • • PLEASE PRINT COMPANY NAME AND ADDRESS IN MARGIN BELOW • • •

DARNELL



DARNELL CASTERS & WHEELS
"Reduce the Overhead that is Underfoot." Minimum floor wear, maximum efficiency, durable service commend them to you.

It will pay you to investigate●●

Ask for New 192 Page
DARNELL MANUAL

DARNELL CORP. LTD., 60 WALKER ST. NEW YORK, N.Y.
LONG BEACH, CALIFORNIA, 36 N. CLINTON, CHICAGO, ILL.

(*Continued from page 122*)

frequently the discoloration remains unnoticed. This same effect takes place on the cotton blanket; and we find it good practice to brush off the accumulations of lint and other matter which may adhere to it. This we do, with a brush made of burnishing wire cloth from the card room, whenever needed. If an end from the creel should break and form a lap of large size on the squeeze roll it will leave a well defined track. To avoid stuck-ends from this cause we stop the slasher, run back a few yards of the blanket, wet, re-roll and start up. Small laps will leave no track.

Our slasher, weave room hands and executives are thoroughly sold on the cotton blanket and would not willingly return to the wool fabric. Our fleeced blankets have given us up to 3,000 trouble-free hours of operation—on one slasher, and as time passes we hope to do even better.

Mr. G. H. Dunlap has made a preliminary report on this subject while employed by the Textile Foundation, copies of which may be obtained from that source.—J.L.D. (*S.C.*)

Training Loomfixers Quickly

I was interested in the letter of G. E. B. in the June issue of TEXTILE WORLD on training loomfixers quickly.

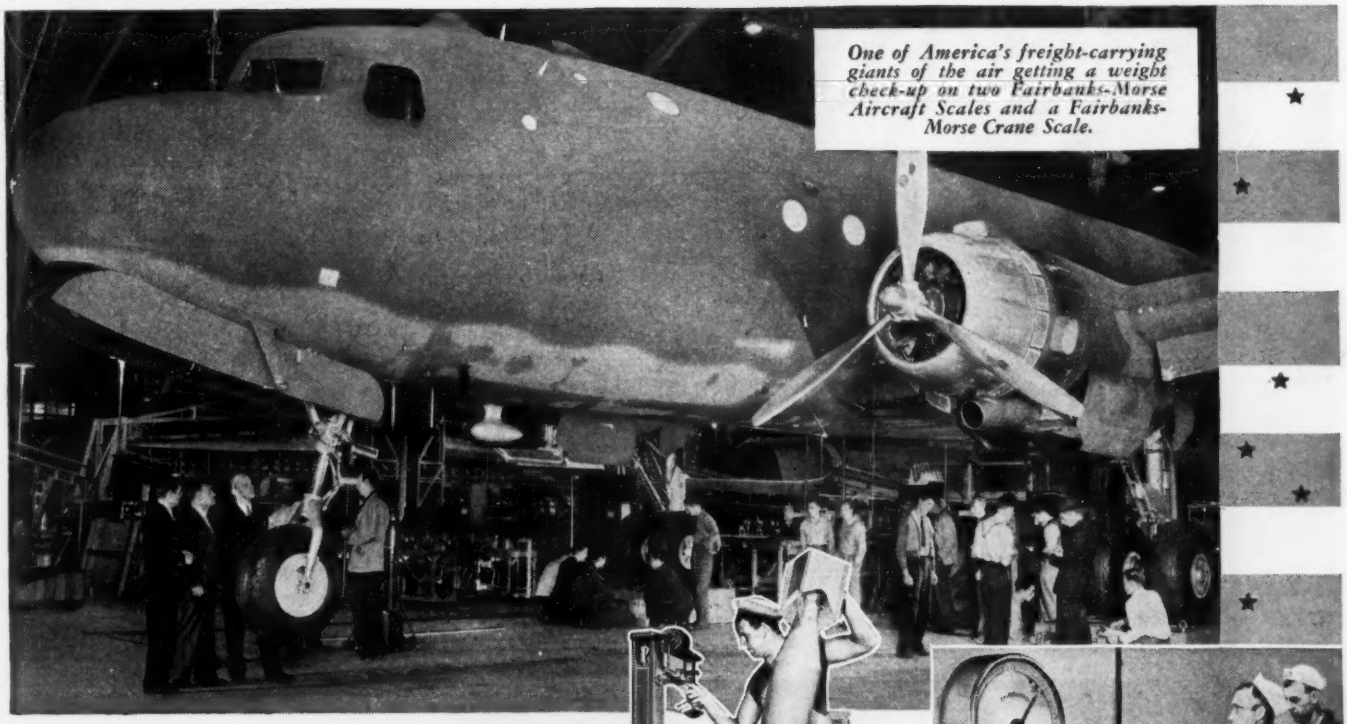
After considering the plan of breaking down the job to such a fine point, I am inclined to think that in some plants on constructions such as sheeting and print cloth where a large number of looms are assigned to a single style, that G. E. B's plan would be well worth trying. In our own case, however, we believe that the same scheme would be entirely unsatisfactory because we often have one loomfixer who is fixing looms on constructions which are so radically different that the settings have to be changed, and in some instances the looms themselves are slightly re-designed to do a special weaving job. You can readily see that in the weaving of particularly difficult constructions a mill such as ours needs loomfixers with long experience and imagination.—M.V.H. (*Ga.*)

Can You Top This?

Maybe I ought to send this one to Ripley instead of TEXTILE WORLD because for freaks of nature this does take the cake.

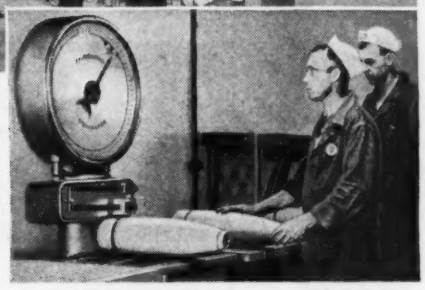
One day recently one of my weavers came running up to me white as a sheet and pulled me over to his

Fairbanks-Morse Scales in Warwork



One of America's freight-carrying giants of the air getting a weight check-up on two Fairbanks-Morse Aircraft Scales and a Fairbanks-Morse Crane Scale.

Weighing an "egg" for the Axis.



Correct weight for accurate gunnery.

• WARWORK means *weigh-work* for Fairbanks-Morse Scales. They're weighing munitions . . . food . . . chemicals . . . tanks . . . aircraft . . . shells . . . just about everything, in fact. They are weighing at speeds which human hands can't match. They're weighing with accuracy that human eyes can't equal. They're working in endless shifts that human stamina can't endure. They're helping to speed up America's war effort on the production front, for Fairbanks-Morse Scales are "at home" on the production front, in peace or in war. Fairbanks, Morse & Co., Fairbanks-Morse Building, Chicago, Illinois.

★

Frozen eggs—NOT for the Axis!

★

Weighing charging materials at iron works furnace.

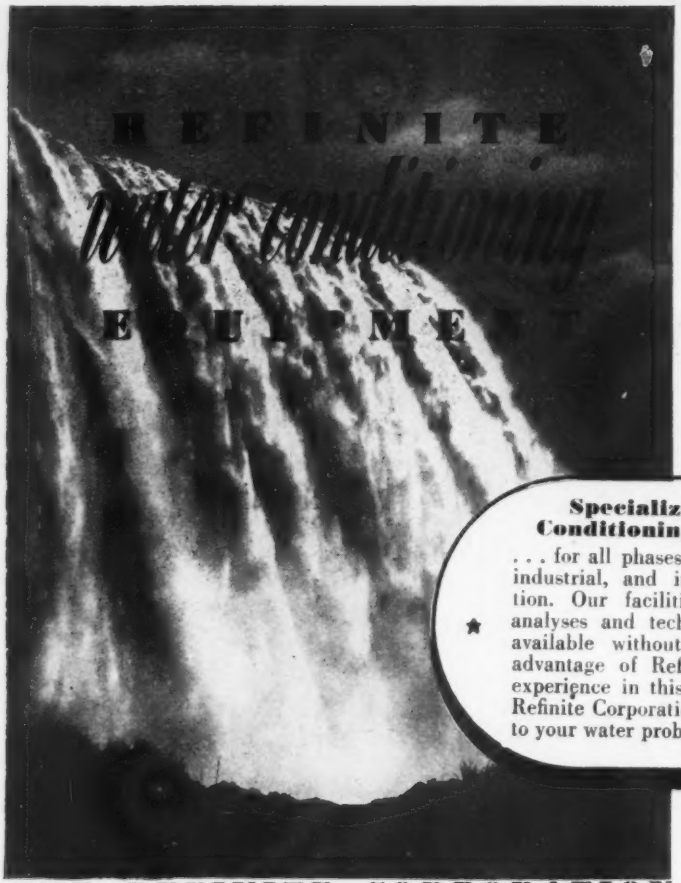
★

FAIRBANKS-MORSE

DIESEL ENGINES
PUMPS
MOTORS
GENERATORS
WATER SYSTEMS
SCALES
STOKERS
FARM EQUIPMENT
RAILROAD EQUIPMENT

Scales

BUY WAR BONDS



Specialized Water Conditioning Equipment

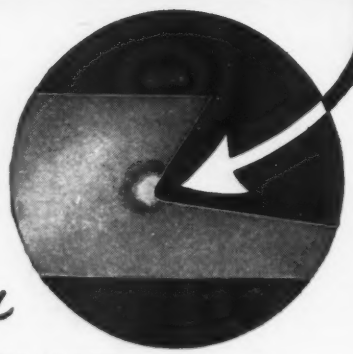
. . . for all phases of manufacturing, industrial, and institutional operation. Our facilities for laboratory analyses and technical surveys are available without obligation. Take advantage of Refinites 26 years of experience in this field. Consult the Refinite Corporation for the solution to your water problem.

THE REFINITE CORPORATION

Write for free catalog, 107 Refinite Bldg., Omaha, Nebraska

The SINKER WITH THE PATENTED
HARDENED THROAT

and the
HARD
BUTT
Gives You



ESS BREAKAGE
ONGER SERVICE
OWER OPERATING COST
ONGER UNIFORMITY OF PRODUCT

THOMAS & SKINNER
STEEL PRODUCTS COMPANY

1119 East 23rd Street Indianapolis, Indiana

stand of looms. I examined a loom he was pointing at wildly and saw that it had banged off from what looked like a snarl in front of the harness. He motioned for me to look in the shed and there neatly bound up in the warp was a live snake about fourteen inches long! I took the snake by the neck with a pair of pliers and took it outside and killed it.

This weaver had almost put his nose on the snake when he leaned over to draw in an end and consequently received the fright of his life.

Now the best part of the whole affair was that he was a man who hit the bottle pretty hard and everybody knew it, and gave him such a ribbing that he took the pledge and stayed sober for quite a while.—G. S. (*R. I.*)

What is the Largest Picker Lap Possible?

We might increase the yardage of our 14-oz. lap in the card room to the point where the largest possible diameter lap is made. Such a change will reduce doffing time at the pickers and creeling time at the card. However, I would rather run more yards per lap than increase the ounce lap as I believe that a better sliver will result. I would like to see in the Mill Men's Round Table a list of the factors that limit the lap size, and the largest diameter lap that is practical to use on a standard cotton card.—M.T.S. (*S.C.*)

Women Make Good Doffers

This is a problem that consistently and constantly arises. Without hesitation I'd say, that women are suited for doffing, but with certain limitations. Reasonable speed and efficiency can be expected from women if they are classified on a scale different from male doffers.

Here are some of the "don'ts":

Don't put two young girls together. They will naturally talk about kindred interests other than the job. (I've tried it.)

Don't put two older women together as that is just as bad; they have lost much of the flexibility of their arms and their strength reserves run out quickly.

The best average age for a woman doffer is not over 35 years. The most successful method I've found is to team a male and female doffer as the male doffer will help his partner a little, especially if that partner is a woman.

Women doffers need more encouragement than men. Quite a few of them have relatives in the service and they worry quite a bit.—C.J. (*Pa.*)

John P. Maguire & Company

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Check Credits

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CORRESPONDENCE INVITED

RYERSON STEEL IN STOCK

Call Ryerson for any kind, shape or size of steel you need. Steel for manufacturing, maintenance or construction ...all products are available for immediate shipment from any one of the ten convenient Ryerson Steel-Service Plants. Ask for a stock list...your guide to steel.

Principal Products Include:

Bars • Shapes • Structurals
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JOSEPH T. RYERSON & SON, INC.
STEEL-SERVICE PLANTS AT: CHICAGO, MILWAUKEE, ST. LOUIS, DETROIT, CLEVELAND, CINCINNATI, BUFFALO, BOSTON, PHILADELPHIA, JERSEY CITY

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RAYON TOPMAKER
VISCOSE
ACETATE
RAYON NOILS

★

158 SUMMER STREET
BOSTON 10, MASS.

Mill Maintenance Section

(*Continued from page 105*)

4. Pressure gauge on boiler reads too low.

No Water Coming to Trap

1. Trap installed above a leaky bypass valve.
2. Broken or damaged siphon pipe in siphon drained cylinders.
3. Broken valves in line to trap.
4. Pipe line or elbows plugged with dirt.
5. Vacuum in water heater coils may prevent drainage—install a ¼-in. check valve as a vacuum breaker between trap and coil.

Bucket Vent Plugged

1. Caused by bad water conditions and usually can be prevented by installing a strainer ahead of trap.

Trap Body Filled With Dirt

1. Strainer will prevent accumulation of particles too large to be carried out with condensate.

Worn or Defective Mechanism

1. Examination will show which parts are worn or may otherwise require replacement.

Continuous Flow—If the trap discharges water continuously, check the following:

Trap Too Small

1. Larger traps or additional traps should be installed.
2. High pressure orifice may be used for a low pressure job. Install right size of orifice.

Abnormal Water Conditions

1. Boiler may foam or prime, throwing large quantities of water into steam lines. A separator should be installed or else the feed water conditions remedied.

Steam Loss—If the trap blows live steam, trouble may be due to any of the following causes:

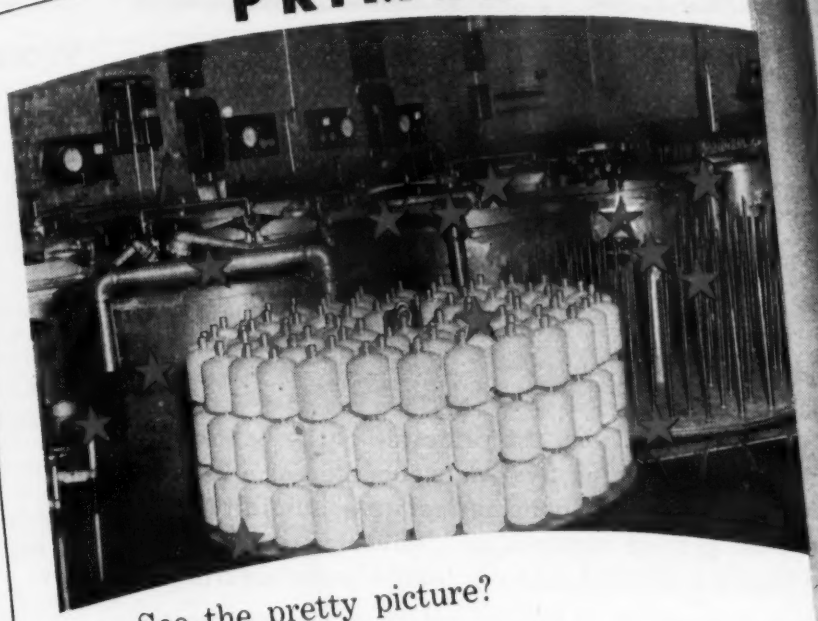
Valve Fails to Seat

1. Piece of scale or pipe cutting lodged in orifice.
2. Worn seat.

Trap May Lose Its Prime

1. If the trap is blowing live steam, close the inlet valve for a few minutes. Then gradually open. If the trap catches its prime the chances are that the trap mechanism is all right.
2. Prime loss is usually due to sudden or frequent drops in steam pressure. On such jobs the installation of a check valve is called for and, if possible, locate the trap well below the unit or line that it drains.

PRIMER



See the pretty picture?
It is a Dye House.
See the pretty Stars?
They mark Stainless Steel parts.
Where can the mill get all these parts?
All these parts come from One source.

A Partial List STAINLESS STEEL PRODUCTS

- ANGLES
- BARS
- BOLTS
- CASTINGS
- FITTINGS
- FORGINGS
- NUTS
- PAILS
- PIPE
- PLATE
- RIVETS
- SCREWS
- SHEETS
- TAPER PINS
- TUBING
- VALVES
- WASHERS
- WELDING ROD

Yes! All of those stars mark the Stainless Steel items, used in this modern dye house, which can be purchased from one source—the "Specialists in Stainless Steel."

● **ALSO**—we have a heat treating department for the Surface Hardening of stainless steel parts, such as thread guides, trumpets, tensions, etc. Surface Hardened stainless steel parts have a hardness equivalent to 1100 Brinnell and maximum obtainable wear resistance.

Write us for further details.

INDUSTRIAL STEELS, INC.

"Specialists in Stainless"

250 BENT STREET
CAMBRIDGE, MASS.

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TROwbridge 7000
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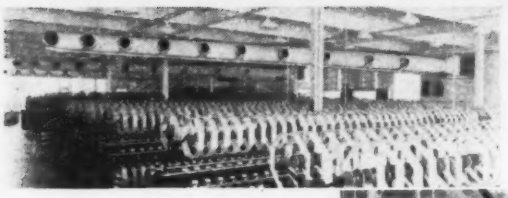
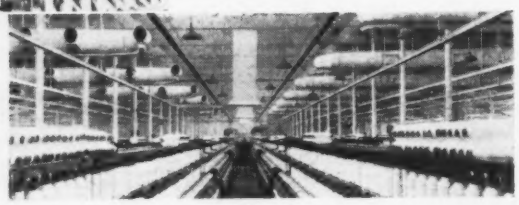
Cambridge 547

Bahnson HUMIDUCT System



Modern method for delivering entrained moisture to heavy heat load areas.

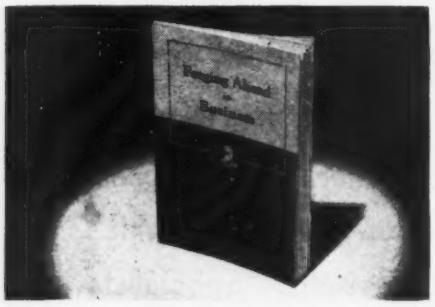


The Humiduct System is developed from the original duct-distributing method pioneered by the Bahnson Company more than ten years ago.

Today the principle of the Bahnson HUMIDUCT Air-Conditioning System is accepted as a basic principle for maintaining a constant relative humidity, as well as the best proven method for delivering entrained moisture to heavy heat load areas in textile manufacturing.

The experience of hundreds of pre-war installations, plus current research and laboratory experimental work, have contributed important improvements in design and operating efficiency for post-war or high priority installations.

Bahnson System
AIR CONDITIONING ENGINEERS
THE BAHNSON CO. WINSTON-SALEM, N. C.



Every Ambitious Man in Industry Should Read this Free Booklet!

"FORGING AHEAD IN BUSINESS" contains FACTS for all thoughtful, forward-looking men; it has a message of particular interest to *technical men.*

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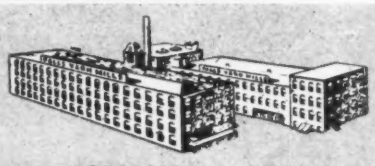

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222 WEST ADAMS STREET

NEW DYES & CHEMICALS

Water-Repellent and Mildewproofing Agent

Development of a new combined water-repellent and mildewproofing agent has been announced recently by Sandoz Chemical Works, Inc., 61 Van Dam St., New York. This compound, known as Cerol TGI, is an emulsion containing dihydroxy-dichlor-diphenylmethane. It possesses high stability both in its concentrated form and when diluted to working strength. It is applied on the usual equipment, such as a padder or a jig, in a similar manner to that used for normal wax emulsion types of water repellents. Regular cans or frames are suitable for drying; no backing or curing is necessary. An 8% solution generally is recommended. Fabrics treated with Cerol TGI are said to be non-toxic, and garments made from them may be worn in contact with the skin.

Urge Prompt Return of Chlorine Cylinders

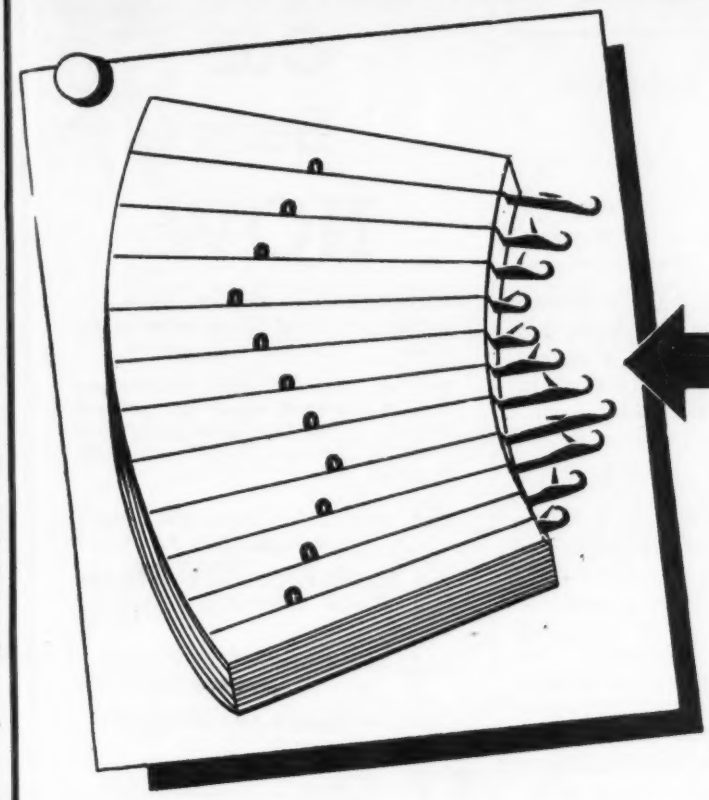
Producers of liquid chlorine are urging the prompt return of empty cylinders in order to avert a possible shortage of chlorine for military and sanitary uses. Because of Government allocation of steel, it is almost impossible to obtain new cylinders, although facilities for production of chlorine are believed to be adequate. However, if every cylinder is returned for refilling as soon as it is empty, it should be possible to keep a sufficient number in circulation ot take care of essential users.

Apple Sirup

Apple sirup, a new hygroscopic product, developed by the Eastern Research Laboratory, U. S. Department of Agriculture, Chestnut Hill Station, Philadelphia, is believed to have a number of potential applications in the textile industry. The process for its manufacture consists essentially of the treatment of apple juice with lime to a pH of 8.0 to 8.5, heating to 175°F. to precipitate the pectin, filtering, acidifying to a pH of 5.0 to 5.5, and concentrating under vacuum to 75° Brix.

The resulting product contains about 40% levulose, 14% dextrose, and 13% sucrose. It is amber in color and is clear. If apple sirup is to be used in conjunction with oils and soaps, it can be prepared almost colorless, with high or low viscosity by leaving in or removing the pectin.

THE FAMOUS VERSATILE



LEIGHTON

"OUTER DIAL"

THE KNITTING POINTS

The Secret of Better Knitting because of

LESS YARN STRAIN

Today *versatility* is the big virtue in knitting machines—from military to civilian goods with speed, ease and—profit. Leighton handles all classes of outerwear fabrics with ease—because of the famous Leighton "outer dial" shown above.

Leighton operates horizontal needles from the *outer dial toward the center.* This reduces yarn strain.

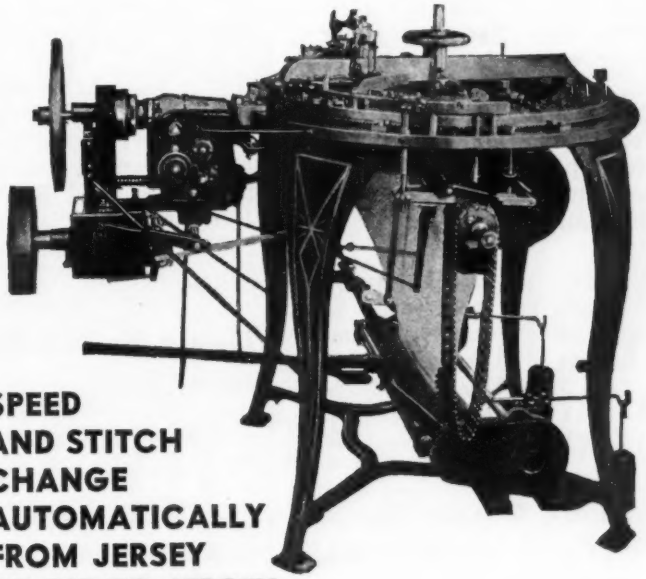
Leighton stitches pass down over the *exterior* of the cylinder. The *face* of the fabric is in full view—an advantage on plaited fabrics.

See the butts of the Leighton needles . . . . . wider apart than the gauge. Yarn is taken into the machine with a minimum of strain.

Leighton eliminates sharp bends—you knit soft spun yarns with less end breakage.

Each needle nearly completes its stitch before the next one starts. The Leighton *diverging* needles give the yarn more room—and allow the use of heavy or fine yarns on the same gauge machine.

Yes sir—it's versatility in knitting you want TODAY—which means LEIGHTON.

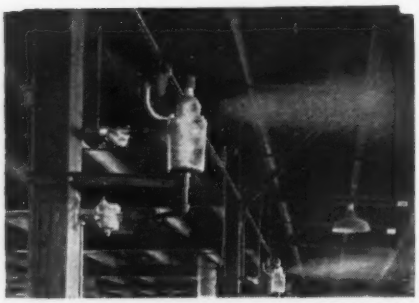


SPEED AND STITCH CHANGE AUTOMATICALLY FROM JERSEY TO RIB TO JERSEY . . .

LEIGHTON MACHINE CO. **MANCHESTER, N. H.**

EST. 1873 LEIGHTON **INC. 1894**

CUT THE "BABY LIGHTNING" HAZARD,



improve working comfort, with

ARMSTRONG HUMIDIFICATION

GOOD NEWS FOR TEXTILE PLANTS that have fire hazard due to static electricity ("baby lightning"): you can get rid of this and also improve human working comfort by installing Armstrong Steam Type HUMIDIFICATION. You also end other dry-air evils, due to winter heat, such as fiber breakage, paper shrinkage, etc. In offices, HUMIDIFICATION raises personal efficiency, cuts winter colds, improves paper handling.

Simple, practical, quiet, high-capacity; connected to steam lines like a unit heater. As low as $100 for 40,000 cu. ft. capacity. Used in hundreds of leading plants. Nothing like it on the market.

Armstrong Machine Works

872 Maple St. Three Rivers, Mich.

WRITE FOR NEW BULLETIN

ARMSTRONG STEAM TYPE HUMIDIFIERS

NEW PUBLICATIONS

Handbook on Industrial Salvage

SALVAGE MANUAL FOR INDUSTRY; Technical Service Section, Industrial Salvage Branch, Salvage Division, WPB.; price 50¢ from Superintendent of Documents, Government Printing Office, Washington.

A comprehensive, practical manual on industrial salvage has been published covering 254 pages of systematically organized and classified information and data—most of it of a "how-to-do-it" nature—on industrial salvage practice in all its ramifications. Material is presented in 26 chapters, grouped into 6 major sections. Chapters cover material on organizing and planning the salvage department; on the administrative factors; on methods of handling (finding, identifying, segregating, collecting, reclaiming, storing, selling, etc.) metal scrap; on nonmetallic waste; case histories demonstrating exemplary practice; a 17-page compilation of practical hints for handling specific materials; and an index.

The volume was prepared by an editorial board of practical industrial salvage engineers and business paper editors comprising the following: editors, Robinson D. Bullard of Bullard Co., and Fred P. Peters of *Metals and Alloys*; associate editors, H. E. Blank, Jr. of *Modern Industry*; Arthur M. Perrin of National Conveyors Co., E. J. Tangerman of McGraw-Hill Publishing Co., and R. A. Wheeler of International Nickel Co.; managing editor, John O. Emerson of Industrial Salvage Branch, WPB.

Guide for Mill Men

PRODUCTS AND PRIORITIES; published every four weeks by Supt. of Documents, U. S. Government Printing Office, Washington, D. C.; 20¢ a copy, $2.00 a year.

Designed to aid all textile mill men, business men and Government officials in obtaining information on all products, materials and service handled by the War Production Board, is this publication, issued weekly by WPB.

This publication will include all information formerly contained in "Priorities" and in "Product Assignments," both of which will be discontinued.

A feature of "Products and Priorities" is a master alphabetical index listing every product, material, or service which comes under WPB supervision or control. This listing will enable business men and others to determine easily the numbers of any applicable WPB orders and forms.

He's Our Boss NOW

Uncle Sam is getting all of our production efforts for the duration of the War.

But our research and development work is still going ahead and you will profit by its results in greatly improved machines for yarn throwing, as soon as peace returns.

U. S. ACME TWISTERS FOR SPOOL OR HEADLESS PACKAGE

U. S. JUMBO FACE DRIVE TWISTERS FOR LARGE HEADLESS PACKAGE WORK

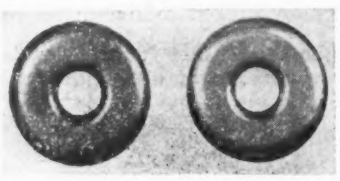
U. S. ACME DOUBLER TWISTERS—LARGE PACKAGE

U. S. REDRAWS AND SPOOLERS

U.S. TEXTILE MACHINE CO.

SCRANTON, PENNSYLVANIA, U. S. A.

Higher Tension Efficiency with WAYNE TENSION DISCS



Wayne tension discs provide uniform tension with a minimum of wear. Higher production efficiency is assured. Constructed of hardened chrome plate steel. Write today for complete details and the savings offered by Wayne discs.

Wayne Manufacturing Co.
Honesdale, Pa.

Manufacturers of Textile Mill Supplies

PURATIZED

TRADE-MARK REG. U.S. PAT. OFF.

SOLVES THE MILDEW AND BACTERIA PROBLEM

in Military Fabrics

MILLIONS OF YARDS of military textiles have been . . . and are being . . . conditioned against the destructive action of mildew and bacteria and made antiseptic by PURATIZED*—the lasting mildew- and bacteria-resistant finish.

So great is the demand for PURATIZED formulations by manufacturers with war contracts that PURATIZED may not, at this time, be supplied in any great quantity for the finishing of civilian materials. In treating mosquito netting, jungle hammock covers, ground cloth, duck, pneumatic float and boat materials, and a long list of other supplies for the Army, Navy, Marine Corps, Coast Guard, and Maritime Commission, war contractors have found PURATIZED a practical finish that meets the severe Government specifications for mildew and bacteria resistance in military textiles.

When all war orders are filled, PURATIZED will be available, in abundant quantities. Then textile products of every kind—domestics, napery, draperies, towelings, carpetings, dress goods, and countless PURATIZED articles—will offer the textile industry a sensational postwar merchandising opportunity. For all these textile items, when PURATIZED, become lastingly bacteriostatic, fungistatic, mildew-resistant . . . hence longer lasting and more serviceable.

Other industries, such as paint, paper, leather, plastics, rubber . . . already using PURATIZED to finish important war goods . . . will benefit when we have won this war and peace comes again, from the laboratory-tested and war-proved qualities that PURATIZED gives to their consumer goods. We regret that vital war duties make it impossible to fill sizable orders for civilian consumer goods at present. However, limited quantities of PURATIZED formulations are available to textile manfacturers for research purposes.

TRADE-MARK

GALLOWHUR & COMPANY, INC.

250 E. 43rd Street, New York 17, N. Y.

*TRADE-MARK REG. U. S. PAT. OFF.

"better impregnation of fibres!"

Johnson's DRAX

the water repellent made by the makers of Johnson's Wax

Why better impregnation from Johnson's DRAX? The answer lies in a special method developed by S. C. Johnson & Son which makes the colloidal particles of DRAX extremely uniform in size. The result is better impregnation of fibres . . . and uniform, even distribution on the entire run of cloth.

Have you tried DRAX? Here are other features found in this water repellent:

DRAX is noteworthy for its ease and economy of application

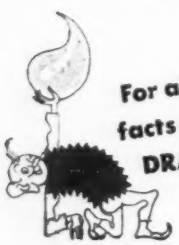
DRAX may be diluted with ordinary tap water

DRAX helps improve hand

DRAX has an excellent "money value"

Further, to help you meet the mildew problem, we have developed DRAX 1860PMA. This special formula contains sufficient quantity of phenyl mercuric acetate to provide a mildew-proofing which meets the microbiological test for *chaetomium globosum.* DRAX 1860PMA DOES NOT LEACH OUT READILY.

☆ *BUY U. S. WAR BONDS AND STAMPS* ☆



For all the facts about DRAX, write...

S. C. Johnson & Son, Inc.
Industrial Wax Division
Dept. TW-123, Racine, Wisconsin

News of Suppliers

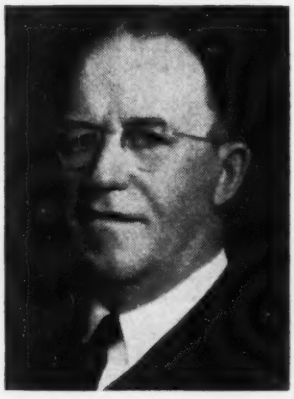
Textile-Finishing Machinery Co., Providence, R. I.—J. Allen Harlan (president of the company) and Emery W. Lothrop have been appointed temporary receivers. The company is reputed to be fully solvent and capable of performing its contractual obligations. They will continue to make maintenance and repair parts and calender rolls. Trade will be given notice of any change in this policy.

Onyx Oil & Chemical Co., Jersey City, N. J., held a forum on degradation of cotton, both in the finishing operations and in laundering, on Oct. 26. Lt. Col. Frank M. Steadman spoke about Army textile problems and Com. W. F. Prien discussed Navy problems, especially those concerning indigo-dyed fabrics. It was brought out that a strength loss of about 20% results through degradation in cotton bleaching, dyeing, and finishing operations.

S. Blickman, Inc., Weehawken, N. J., has received the Army-Navy "E" award for excellence.

E. F. Culbreath Co., Johnson Bldg., Charlotte, N. C., has been appointed factory representative for Master Electric Co., Dayton, Ohio, to cover western North Carolina and all of South Carolina.

Starch Adhesives Industry Advisory Committee, appointed by OPA, comprises, among others, Frank Greenwall, president, National Starch Products Co.; Edwin Stein, vice president, Stein-Hall Mfg. Co.; William Weaver, president, Arabol Mfg. Co.; Edwin H. Arnold, president, Arnold-Hoffman Co., Inc.



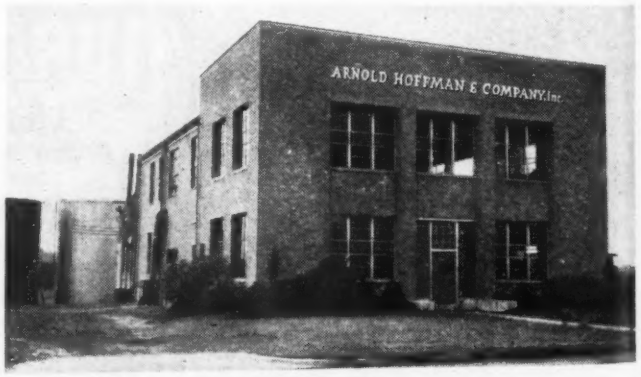
J. J. FOLEY, export manager of Whitin Machine Works, Whitinsville, Mass., who has just concluded an extensive trip through Latin America investigating textile conditions and postwar markets. He arrived in Mexico City Oct. 4 and left Rio de Janeiro for home on Dec. 6. In between he touched at the following centers: Balboa, Medellin, Cali, Lima, Santiago, and Bueons Aires.

Empire State Yarns Corp., New York, has moved to new quarters in the Empire State Bldg.

Aqua-Sec Corp., New York, has elected William H. Scott, for the last five years vice-president of the company, to be its president, succeeding Donald M. Martin, resigned.

American Aniline Products, Inc., New York, has opened a Pacific Coast office at Los Angeles, Calif., in charge of Albert E. Slater.

Pennsylvania Salt Mfg. Co., Philadelphia, Pa., has lately



ARNOLD, HOFFMAN & CO., Providence, R. I., has purchased the modern plant formerly occupied by Refiners, Inc., and located on North Tyrone Ave., Charlotte, N. C. This building shown above will house the company's Charlotte office; also laboratory, manufacturing and warehouse facilities to supplement those at Providence, R. I., and Dighton, Mass. The offices will be occupied before Jan. 1, 1944, and the laboratory and manufacturing plant as soon thereafter as priorities will permit.

FOR SALE

Whoa! Not too fast. We've been in business—in a big way for more than fifty years—and doing better and better.

What we've got for sale—for application in mills and finishing plants—are good "Cravenette" water repellents. For example—"Cravenette" CBC—and if you will take our bashful word for it—it's the honey!

Here's the record. Water repellency is imparted to all-wool, or all-cotton fabrics by the one-bath method—either from a washer, or a standing bath. It is simple to apply; stable under variable conditions and a wide range of temperature. It is liquid at high and low temperatures, accurately compounded, odorless, and you will like the feel and finish of the fabrics treated.

Not least of its recommendations is the price.

But no buyer considers just chemicals. What he wants to know is "What water repellent is going to bring me the most business?" There's where "Cravenette" leads the field—with a head start of more than 50 years. The use of the trademark "Cravenette" to identify the water repellent you apply to your fabrics will earn the confidence of every one in the chain of buyers and sellers to the ultimate man or woman who buys the made up garment.

Give us a call and have us get down to cases. In the meantime, if you would like a sample of "Cravenette" CBC, write us and we will send it.

Your fabric treated with

CRAVENETTE
REG. U.S. PAT. OFF.

water repelling preparations

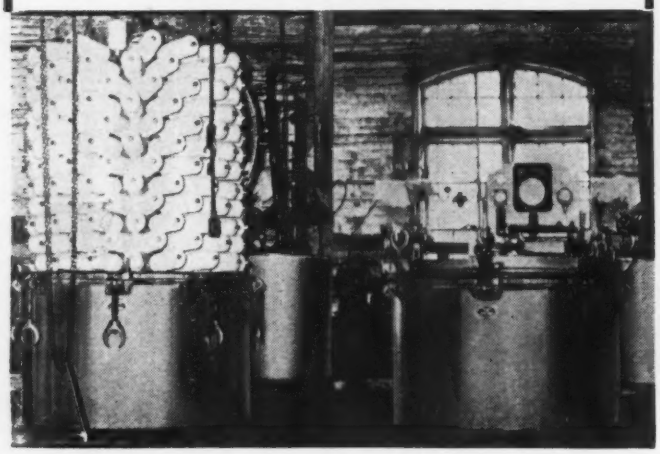
SHEDS SHOWERS

"CRAVENETTE" is a trademark of the Cravenette Co., U. S. A., manufacturers and sellers of water repelling preparations. The Cravenette Co., U. S. A., and its licensed agents, apply these preparations to fabrics and garments.

CRAVENETTE CO., U. S. A.
CHEMICALS DIVISION
8th and Madison Streets, Hoboken, N. J.

Obermaier

REG. U. S. PAT. OFFICE



Model KRAG 407 Twin Package Spindles, Machine with Carrier.

The spindles on the model KRAG are placed horizontally on carrier, which makes for easy loading and unloading.

Two packages are loaded on one spindle, so that any desired flow of dye liquor can be obtained by the use of larger capacity pumps.

This model is ideal for the dyeing of tubes of cones as the outer circumference of the loaded cones increases in direct proportion to the larger bottom diameter of the tapered form of the cones.

The special feature of this machine is the built-in indirect heating cylinder which makes for even temperatures throughout the entire bath and consequent level dyeings of any shades sensitive to heat.

At the same time, it reduces the liquor ratio to a minimum thereby producing most economical dyeings, especially with vat colours.

Builders of

Cotton & Wool Dyeing Machines

for

Beams • Packages • Rawstock • Skeins

•

Centrifugal Extractors and Driers

•

Centrifugal Pumps

•

Rayon Cake Dyeing Machines

•

Dye Spindles and Perforated Tubes

Stainless Steel Construction

★

All Subject to Required Priorities

★

Standard Fabricators

INCORPORATED

355 WALTON AVENUE • NEW YORK, N. Y.

Replacement Parts For Existing Machines Can Be Furnished

SONOCO PRODUCTS CO., Hartsville, S. C., received the Army-Navy "E" award on Nov. 4. Above, presentation of pennant is being made by Col. C. W. Woodward, in command of Charlotte (N. C.) QM Depot, to James L. Coker, president of Sonoco. Nearly 2000 employees were assembled in the cone plant building to witness the ceremonies, with John H. Martin, general production manager, master of ceremonies. It is estimated that 90% of Sonoco's production is essential to the war effort.

added the following to its Research and Development Department staff: J. Grant-Mackay, formerly with Jefferson Island Salt Mining Co.; Francis E. Murphy, formerly with General Chemical Co.; Dr. Herbert E. Ricks, formerly with Gutham Radio Co.; W. C. Wolfe, formerly with Petroleum Chemicals, Inc.; and Alfred H. Pope, formerly with General Chemical Defense Corp.

American Section of the Society of Chemical Industry, London, England, has elected Gaston F. DuBois, vice-president of Monsanto Chemical Co., St. Louis, to receive the Perkin Medal in recognition of his outstanding work in applied chemistry. Presentation of the medal will be made at a dinner meeting of the Society at Hotel Commodore, New York, on Friday, Jan. 7. Mr. DuBois will become the 38th distinguished chemist to receive the medal. Since he joined Monsanto in 1904 he has contributed to practically every technical development of the company and its subsidiaries.

Jenkins Bros. has appointed J. Murray Whitworth to the Pittsburgh area as a sales representative. He succeeds John J. Simpson who resigned to become general sales manager of Pittsburgh Gage & Supply Co.

Monsanto Chemical Co., St. Louis, has elected Francis J. Curtis to be vice president in charge of Monsanto's long range program of development here and abroad, including general research and general sales.

Devoe & Raynolds Co., Inc., New York, has appointed Henry N. Lyons to fill the newly-created position of administrative manager of laboratories. Mr. Lyons will follow through the many lines of research which are instituted at the company's laboratories in Louisville. For 21 years, Mr. Lyons has been associated with the Cities Service Co. in various capacities.

Elwell-Parker Electric Co., Cleveland, O., is observing its 50th anniversary this year. Company executives point out that Elwell-Parker was the first builder of power industrial trucks. The firm was started as an offshoot of Elwell-Parker, Ltd., which made motors and dynamos in Wolverhampton, England, but the American company soon bought out the holdings of its British antecedent.

Thermoid Co., Trenton, N. J., has completed acquisition of the Joseph Stokes Rubber Co. With this addition,

ROBERT COLLYER, who has been promoted to the post of advertising manager of Calco Chemical Division, American Cyanamid Co., Bound Brook, N. J. Before joining the Calco organization, Mr. Collyer was active in direct mail advertising and in the printing trade in New York.

WHAT! ONLY ONE YEAR OLD?

So husky, too, for a newcomer to the fabric world just a year ago! In that short time, A-Q has become a name to put at the top of your list . . . a name that stands for assured growth, for continued quality and consistent prices within recognized wartime brackets. A-Q began life by concentrating all its facilities on one type of fabric, one quality, one standard . . . A-Q will continue to specialize and excel in A-Q TRICO-KNITS for outerwear and underwear.

DISTRIBUTED BY PHILIP WICK CO. · 17 EAST 37TH STREET, NEW YORK

ARE YOUR FINISHED FABRICS EVER TOO HARSH?

EXSIZE for desizing, will leave fibres soft, elastic, supple!

© 1943, Pabst Brewing Company, Milwaukee, Wisconsin

● Your choice of enzymes for the desizing operation helps govern the condition of your finished fabrics! Malt enzymes give the best all-round results.

EXSIZE, a concentrate of pure malt enzymes, is outstanding for its gentle, natural action. It works fast and thoroughly.

EXSIZE leaves the fibres softer. It is effective in desizing any animal, vegetable or synthetic fibre containing starch or its derivatives.

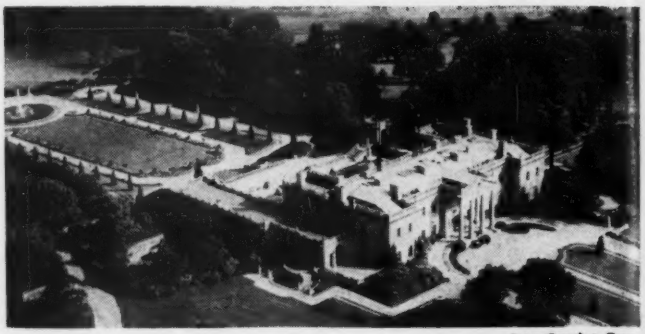
Try EXSIZE on samples of any or all of your fabrics. See how clean and soft it leaves them—how much better prepared they are for bleaching, dyeing and sanforizing. The cost of EXSIZE is very low—a few cents worth will desize hundreds of yards of cotton or mixed cotton cloth, for example.

Use our laboratories for your tests—there's no obligation. Or, if you prefer, a trained Pabst field man will gladly work with you in your own mill. Write for our free booklet.

PABST SALES COMPANY

CHICAGO, ILLINOIS

Warehouses at New York, and
Textile Warehouse Company, Greenville, S.C.



Aero Service Corp.

PENNSYLVANIA SALT MFG. CO., Philadelphia, has purchased the famous Whitemarsh Hall, former residence of the late Edward T. Stotesbury. The edifice, shown above, will be converted into a scientific research laboratory. Commenting upon the purchase, L. T. Beale, president of the company, said "It is our intention to limit the use of this property to scientific institutional purposes solely. No manufacturing or commercial operations of any kind will be carried on in it. We plan to set up in this building a staff of about 75 chemists and their assistants to carry on scientific studies for use in our operations at our various plants." Whitemarsh Hall, located just outside of Philadelphia, in Montgomery County, contains about 150 rooms and has been known as one of the residential show places of this country. It is understood that the property was purchased for less than it would have cost to construct suitable new laboratory buildings. Alterations to be made to the interior of the residence will in no way disturb its familiar outside appearance. The grounds and gardens will be maintained.

Thermoid's combined sales for the year 1943 should exceed $19,000,000. Stokes operates plants in Trenton and Welland, Ontario.

Southern Chemical Cotton Co., Chattanooga, Tenn., has elected to the presidency W. Donald Munson, who has been vice president and general manager. He succeeds D. Hewitt Wood, who retired at his own request. Mr. Wood was named first vice president of the company, and will continue as a member of the board of directors.

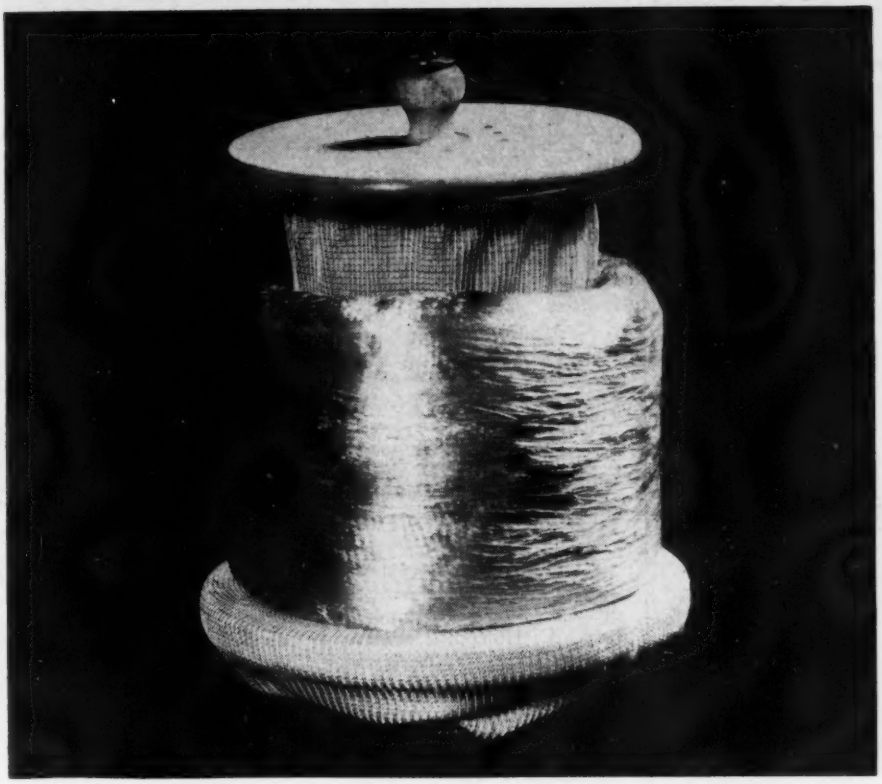
Westinghouse Electric & Mfg. Co. has transferred all heavy-duty air conditioning and industrial refrigeration manufacturing from its East Springfield, Mass., works to the Jersey City, N. J., plant of the Westinghouse Electric Elevator Co. "We believe that air conditioning will become a more important industry in post-war America, and it is our intention that Westinghouse shall continue as one of the major producers in the field," said George H. Bucher, president. Ross Rathbun has been appointed manager of air conditioning, and Walker G. White succeeds Mr. Rathbun as general sales manager of the elevator company.

Link-Belt Co., Chicago, Ill., has purchased the manufacturing plant and inventory of Link Belt Supply Co. in Minneapolis. Ray S. Wood has been appointed plant manager. Link Belt Supply Co. has served as an authorized distributor of Link-Belt products in Minneapolis, St. Paul, and the adjacent territory since 1900. Link Belt has promoted Harold J. Hoefman, who has been manager of the Atlanta plant, warehouse and sales office for almost six years, to the position of general manager of the company's Pershing Road plant in Chicago. He joined Link Belt in 1920. Richard B. Holmes, who has been Link-Belt district manager at Indianapolis since January, 1935, has been named manager of the Atlanta plant to succeed Mr. Hoefman.

Century Electric Co., St. Louis—R. J. Russell, vice-president and sales manager of

OPA ADVANCES BOBBIN AND SPOOL PRICE CEILINGS

AN INDUSTRY-WIDE 6% increase in manufacturers' prices for bobbins and spools, used in textile machinery, was authorized Nov. 16 by OPA on the basis of generally increased raw materials and labor costs. Maximum prices for bobbins and spools currently reflect October 1941 levels. Increases in costs have squeezed manufacturers so that production of the essential articles was threatened unless price adjustments were made. Prior to Amendment 105 to MPR 136, OPA had issued orders adjusting prices for individual manufacturers.



Freeland's Cake Yarn Holder* Suitable For All Operations

The Freeland Cake Holder is designed to meet all exacting mill requirements. Careful consideration was given to speed in all operations, from mounting of cake on unit through the unwinding process.

The unit is used in a stationary position, for end over end operation, which permits higher operating speeds. With a proper tensioning device, thread tension is controlled uniformly from beginning to end of cake, and uniform bobbin hardness is the result. This removes the danger of overstretched yarn and tends to increase efficiency in subsequent operations.

The base board adapter used when winding, coneing or reeling not only permits convenient tucking under of the lower half of the stocking but the operator loses no time setting the unit in place for operation. The top portion of the holder barrel is so constructed that the upper half of the stocking can be conveniently tucked in.

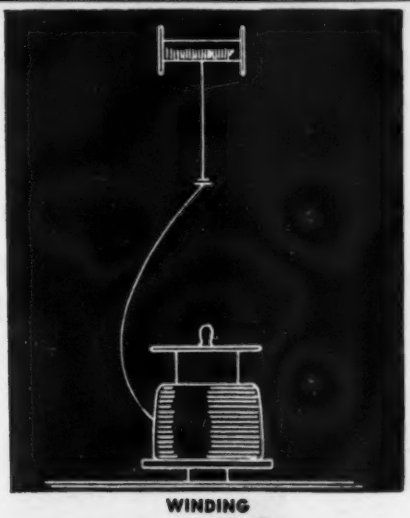
Whether it be winding, reeling, coneing, copping, doubling or cone creel warping, one type unit is all that is necessary, as the Freeland Rayon Cake Holder can be used in a vertical to horizontal position and will fit any standard acetate or rayon cone holder without making any mechanical changes.

** U. S. and Foreign Patents Pending*

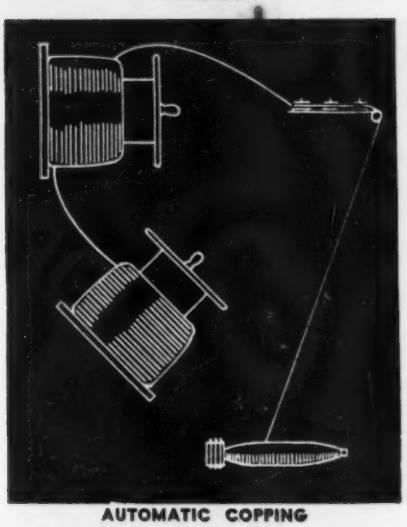
Freeland

SPOOL and BOBBIN CORP.

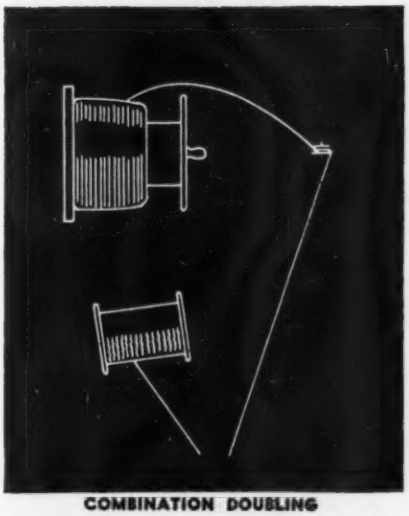
Hazleton, Pennsylvania



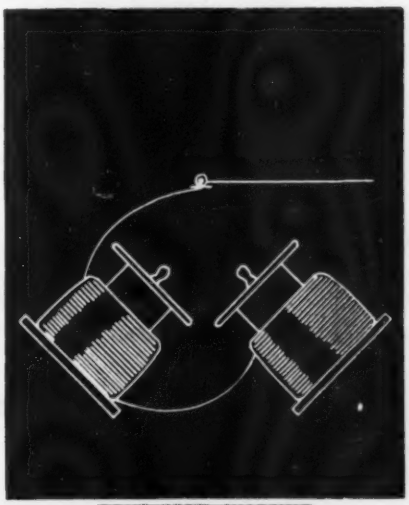
WINDING



AUTOMATIC COPPING



COMBINATION DOUBLING

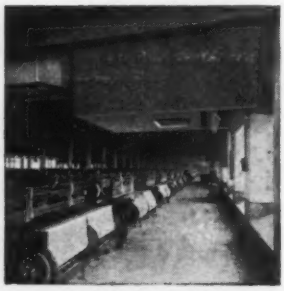


CONE CREEL WARPING

What Is Humidity For?

For an unsuspected purpose in textiles. And a very much better job with the help of

Certified Climate

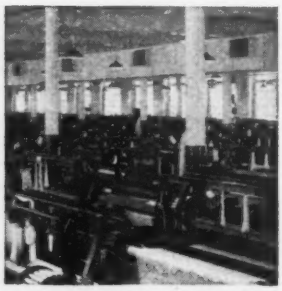


Air enters through mixing chamber

Regain higher and more dependable. Greater strength and more uniformity in numbers.

Propelled through ducts, graduated

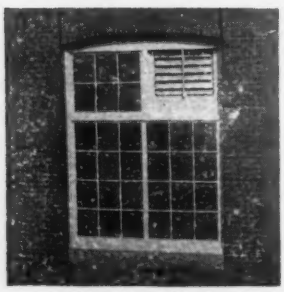
Drafting of Fibers smoother and more compact. Waste and fly reduced to a remarkable degree.



Uniformity of many outlets

Fewer Ends Down. Not as many stops or piecings. Not as many adjustments. Cleaner and very much more comfortable rooms.

Better Product from shorter, less expensive staple. And very often 2% to 3% more production.



Automatic shutters let heat out

Certified **CLIMATE** with its exclusive method of control has been known to PAY FOR ITSELF in a year, or less.

Parks-Cramer Company

Fitchburg, Mass. **Charlotte, N. C.**

NEWS OF SUPPLIERS

Century Electric has been elected president of the Associated Industries of Missouri. The latter is an organization devoted to the promotion of fair business and employee relations policies among employers and employees in Missouri industries.

Norlander-Young Machine Co., Gastonia, N. C., is the new name of the former Gastonia branch of the Norlander Machine Co., New Bedford, Mass. A partnership has been formed by Albert Norlander, of New Bedford, and Frank A. Young, representative at Gastonia.

Charlotte (N.C.) branch of the **Gastonia** (N.C.) **Mill Supply Co.**, has been purchased by E. E. Holcombe, who will operate it as the E. E. Holcombe Heating & Air Conditioning Co. Mr. Holcombe had been associated with the Gastonia Mill Supply Co. for a number of years.

B. F. Goodrich Co., Akron, Ohio, has appointed William S. Richardson as head of the newly-created chemicals division. Mr. Richardson joined B. F. Goodrich in 1926. Goodrich has named Chester F. Conner as assistant general manager, and Fred Lang merchandise manager of the industrial products sales division. Mr. Conner has been merchandise manager and Mr. Lang, manager of sole and heel sales.

Allis-Chalmers Mfg. Co., Milwaukee, will sponsor the weekly broadcast of concerts by the Boston Symphony on the Blue Network of 171 stations. Marking the debut of this industrial organization as a national radio advertiser, the broadcasts will be heard under Allis-Chalmers' sponsorship every Saturday evening from 8:15 to 9:15 p.m., EWT, beginning on a date to be announced. Meanwhile the concerts will continue as a sustaining feature of the Blue Network.

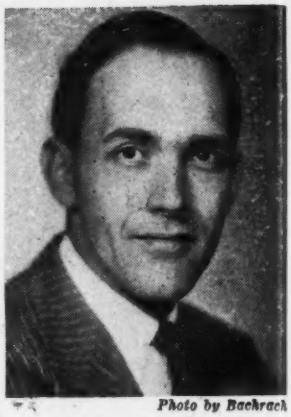


Photo by Bachrach

CHARLES B. KONSELMAN, who has been named advertising manager of Wickwire Spencer Steel Co., New York. He succeeds George L. Randall, recently commissioned a lieutenant (j.g.) in the U.S.N.R. and now stationed temporarily at the Naval Air School, Quonset Point, R. I.

Pabst Sales Co., Industrial Products Division, Chicago, Ill., has appointed C. H. Patrick to represent it as broker in the sale of Exsize in the southern and southeastern states. His headquarters will be at Salisbury, N. C.

Kaumagraph Co., with plant and general offices in Wilmington, Del., moved its New York headquarters to Room 4022-23 Empire State Building on Dec. 1.

Quaker Chemical Products Corp., Conshohocken, Pa., has added Harry J. Sturm to its Administrative Department staff.

THERMOID CO., Trenton, N. J., held an eight-day war conference in October attended by company executives, field sales executives and all salesmen from every sales division of the company. Purpose of the meeting was a thorough, detailed discussion of the company's present and post-war activities and problems. (Left to right) L. R. Leaver, Joseph Stokes Co., Ltd., Welland, Ont.; Fred Holuter, president, Thermoid Co.; and P. Allen, vice president in charge of Original Equipment, at the conference.

This dinner dress of rayon crepe owes much of its style appeal to the proper application of high-quality processing agents, both before and after the fabric came from the looms. Producers of such fabrics are among the most consistent users of Colgate-Palmolive-Peet wetting, fulling, scouring and dispersing agents—high-quality soaps and detergents made specially for the textile industry. And, these products are equally effective on any type of fabric, regardless of style or material changes resulting from the war. Your local C.P.P. man will gladly give you detailed information on the full line of Colgate-Palmolive-Peet processing agents.

COLGATE-PALMOLIVE-PEET CO.

Jersey City, New Jersey
Jeffersonville, Indiana
Kansas City, Kansas
Berkeley, California

★ ★ ★

COLGATE KWIKSOLV • COLGATE FORMULA 25

BADGER FLAKES

COLGATE WHITE SOAP FLAKES • ARCTIC CRYSTAL FLAKES

DON'T WASTE SOAP
VITAL MATERIALS NEEDED TO WIN THE WAR ARE USED IN MAKING SOAPS

TEXTILES' VITAL ROLE IN WINNING THE WAR
(No. 9 OF A SERIES)

"SHOULDER ARMS"

For the Textile Chemist and Dyer

WESTINGHOUSE PHOTO

Far from the field of battle . . . armed only with the equipment of the laboratory and his own trained faculties, the Textile Chemist and Dyer nevertheless plays a dynamic role in winning the war. The men in the armed forces have reason to be grateful to him for their comfort . . . for the protection of their equipment . . . often for their lives.

Textile mills count on Burk-Schier Wet Processing Agents for help in processing all sorts of fabrics. Different characteristics are needed to suit varying military and civilian fabrics . . . new problems must be tackled every day. It's a big job . . . but the Textile Chemists and Dyers are successfully making fabrics fit to fight, here at home, as well as at the front.

BURK-SCHIER

BURKART-SCHIER CHEMICAL CO.

Manufacturing Chemists for the Textile Industry

CHATTANOOGA, TENNESSEE

PENETRANTS • DETERGENTS • SOFTENERS • REPELLENTS • FINISHES

NEWS ABOUT MEN

Kenneth A. Durham, since 1935 vice-president and sales manager of the Davenport Hosiery Mills, Chattanooga, Tenn., has resigned, effective Jan. 1, to become president of Rollins Hosiery Mills, Inc., Des Moines, Ia. Prior to joining the Davenport organization, Mr. Durham was for two years southern representative of the Textile Banking Co. of New York. His father, **Taylor R. Durham**, also a native of Chattanooga, is now in Charlotte as executive secretary of the Southern Hosiery Manufacturers' Association.

Robert O. Huffman, Morganton, N. C., president of Drexel Knitting Mills Co., Huffman Full-Fashioned Mills, Inc., and treasurer the Morganton Full-Fashioned Hosiery Co., and the Garrou Knitting Mills, the latter two in Morganton, chief of the men's hosiery unit in the Knit Goods Branch of WPB since last June, has announced plans to join the OPA as chief hosiery consultant to the directors of the Consumer Goods Division.

W. Donald Munson, formerly vice-president and general manager of the South Chemical Cotton Co., Chattanooga, Tenn., has been elected president.

J. K. Voehringer, Jr., president of Mock-Judson-Voehringer, Inc., of Greensboro, N. C., and Mrs Voehringer, have offered the city of Greensboro $20,000 for the development of a three-acre tract into a municipal playground area as a memorial to their son, John Lester Voehringer, who was killed in action in a bombing raid over Germany early in October, and to "other sons of Greensboro who gave their lives to their country so that future generations could play in peace and freedom."

John Hoye, for the last six years with W. Harris Thurston, New York, as fabric technician, has started his own business at 40 Worth St. under the style of Hoye Textile Corp. He offers consulting and research services and converts cottons and rayons.

W. J. Carter, head of Carter Fabrics Corp., Greensboro, N. C., has been appointed to the War Manpower Commission for four States, Maryland, Virginia, West Virginia, North Carolina, and also the District of Columbia.

Donald Comer, chairman of the board of directors of Avondale Mills, Sylacauga, Ala., has been appointed a member of the Alabama State Board of Education for a six-year term by Gov. Chauncey Sparks.

John F. Tinsley, president and general manager of Crompton & Knowles Loom Works, Worcester, Mass., recently received the honorary degree of doctor of laws from Holy Cross College. This was the second time that he had been honored by that college.

Major Stuart Cramer, president of Cramerton (N. C.) Mills, Inc., presided at one of the luncheon sessions of the Second War Congress of American Industry, 48th annual convention of the National Association of Manufacturers, held in New York City on Dec. 8 to 10.

Joseph Schmitz, Jr., of Universal Dye Works, Philadelphia, Pa., has been elected president of Philadelphia Textile Manufacturers Association.

Dr. Van L. Bohnson has retired as director of acetate research for Rayon Division of E. I. du Pont de Nemours & Co., Wilmington, Del., and has been succeeded by **Dr. Fenton H. Swezey**, his assistant director. **Dr. G. S. Hooper** becomes assistant director.

Ernest H. Wolfes, lately resigned as credit manager for Celanese Corp. of America, has been elected vice-president of Vernay Mills organization which now operates plants in Manchester, N. H.; Peterboro, N. H.; Fall River, Mass.; and Brunswick, Me.

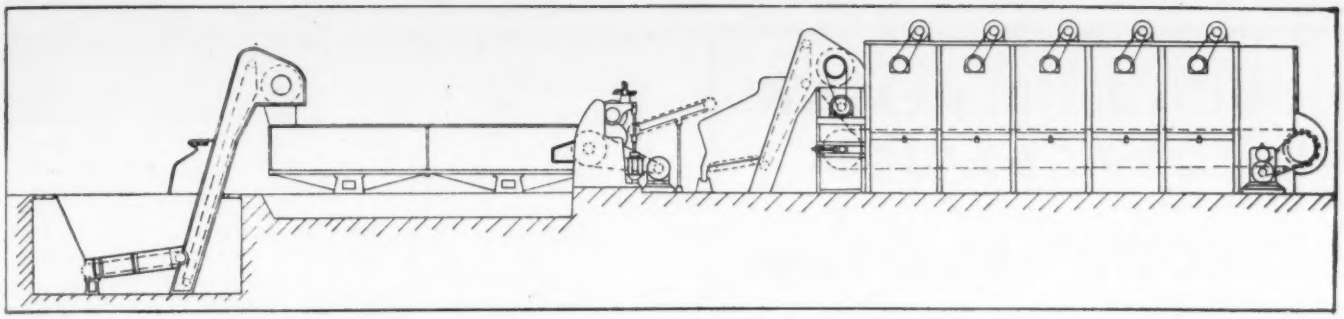
George Ward has returned from 18 months with WPB to Southeastern Cottons, Inc., New York, and is now manager of general sales.

Elmer Morgan has been made head of the yarn sales department of Cheney Bros., New York.

Arthur Levey has been appointed to head the cotton gray goods purchasing at New York for Pepperell Mfg. Co. He also manages the flannel sheeting and print cloth converting activities.

R. L. Holbrook, assistant treasurer of Wiscassett Mills Co., Albemarle, N. C., has been named treasurer, succeeding **Hearne Swink**, of Salisbury, former secretary and treasurer.

W. B. Rhyne, secretary and assistant treasurer of Howell Mfg. Co., Cherryville, N. C., has established a $15,000 fund for an infirmary at Lenoir



THIS IS THE UNIT FOR CONTINUOUS RINSING, EXTRACTING AND DRYING OF DYED RAW STOCK

THE line cut illustrated on this page shows the Hunter developed and engineered continuous range method of handling stock directly from the Raw Stock Dye Kettle discharge to the Dryer discharge. The method of operation is as follows:—

The Dye Kettle "cheese" is dumped into the Hunter Pit Feeder from where it goes into a Hunter Rinse Bowl which rinses the stock free and clear, through Hunter Pneumatically Operated Squeeze Rolls, and directly into the Stock Dryer. There is no handling between the Pit Feeder and the Dryer.

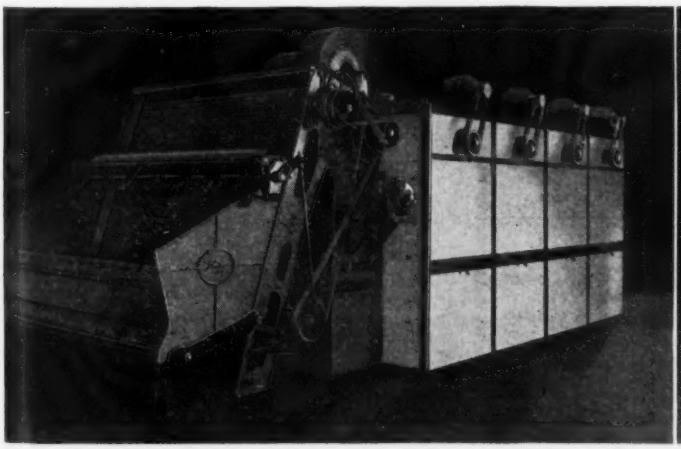
The unit shown above is capable of producing up to 1200 pounds of dyed wool per hour.

After the stock is discharged from the Dryer, it may be either sheeted or blown directly from a hopper to the card room or your stock bins.

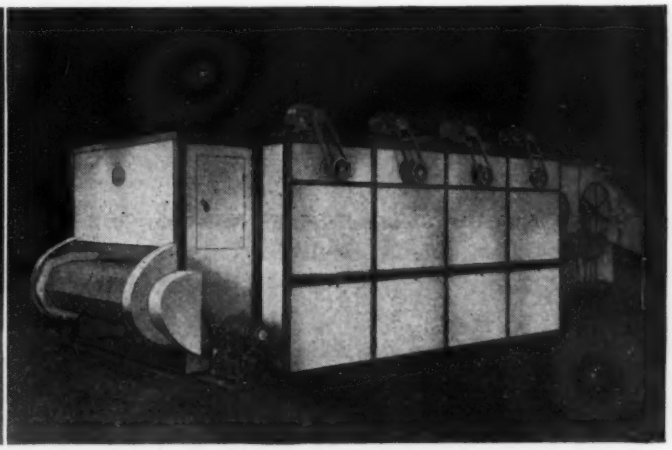
This is the latest and most approved method of handling stock from the Dye Kettles.

Hunter equipment is also available for blending and mixing wools, together with the necessary conveying and blowing systems.

Full details on modern installations on request.



Uniflow Stock Dryer with standard feed



Uniflow Stock Dryer with rotary feed

JAMES HUNTER MACHINE CO.
NORTH ADAMS, MASSACHUSETTS
FOUNDED 1847

OSCAR HEINEMAN CORPORATION

THROWSTERS of Yarns for the Hosiery Trade

Quality Products for Fifty Years

There is nothing that will take the place of years of practical experience in the processing of high quality yarns.

Our formulas have been developed in our own laboratory, by men having years of practical experience.

We invite hosiery manufacturers to submit their throwing problems. We are prepared to process your yarns in the manner best suited for your particular needs.

While a considerable part of our equipment is operating on yarns to be used in various kinds of materials for our Armed Forces, which must be given preference, we are putting forth our best efforts to give our customers, operating on Civilian Goods, satisfactory service.

We are proud of the fact that we were pioneers in the Practical application of *Avconit in the sizing and processing of high twist rayon yarns.

Our processing will be found equally satisfactory on either Viscose or Acetate yarns. We recommend our R-50 *Avconit formula for Bemberg and Viscose unoiled yarns and our R-60 formula for oiled yarns.

For Celanese and other Acetate yarns we recommend either our R-50 *Avconit formula or R-70 formula depending on the method used in dyeing.

2701 ARMITAGE AVE., CHICAGO, ILLINOIS

Aberfoyle Mfg. Co.
123 S. Broad St.
Philadelphia, Pa.

N. P. Murphy
813 Guilford Bldg.
Greensboro, N. C.

C. D. Gott Co.
3303 Brainerd Rd. Chattanooga, Tenn.

*Trade Mark
American Viscose Corp.

Rhyne college, Hickory, N. C., in memory of his son, W. B. Rhyne, Jr., who died early this year.

John Powell, formerly assistant production manager of the Marshall Field & Co. textile mills at Spray, N. C., is now chief of the domestic unit in the cotton branch of the Textile, Clothing and Leather division of WPB.

Henry L. Holshouser, superintendent of Finer Full Fashioned Hosiery Co., Charlotte, N. C., has been elected vice president of the company.

E. C. Sherman, has been elected vice-president of Standard-Coosa-Thatcher Co., Chattanooga, Tenn. He takes a new title as vice-president and general manager. **Shannon M. Gamble**, assistant treasurer, was named controller of the company.

R. Dave Hall, who is secretary and assistant treasurer of Stowe Thread Co., Belmont, N. C., has been appointed to the North Carolina Unemployment Compensation Commission for a four-year term by Gov. J. M. Broughton.

Carl W. Von Dreele, who formerly held an important position with the manufacturing division of Marshall Field & Co., Spray, N. C., unit, and Pawtucket, R. I., unit, has become comptroller and assistant secretary-treasurer of North Star Woolen Mills Co., Minneapolis, Minn.

Albert Carlos has been made secretary of Elastic Fabrics, Inc., West Warwick, R. I.

C. A. St. Lawrence has been made assistant treasurer of William Whitman Co., Inc., in Boston. He has been with the company for 37 years.

Frank H. Deknatel has been elected first vice-president of Bigelow Sanford Carpet Co., New York. He will also continue to act as treasurer.

H. R. Wiley of Delaware Rayon Co. has been elected vice-president of the Rayon Yarns Credit Association, New York, and **John Burke** of the Tubize Rayon Corp. has been elected treasurer. **A. J. Maguire** of the American Viscose Corp., is president.

J. E. Reeves is a newly elected vice president of Mills Mill, Greenville, S. C., and Woodruff, S. C.

J. J. Moore has been transferred to the managership of the plant of Shenandoah (Va.) Knitting Mills, recently acquired by Rufus D. Wilson, Inc., and **E. F. Hariman**, formerly superintendent of the Loughlin Full-Fashioned Hosiery Mills, Inc., Randlemen, N. C., has succeeded Mr. Moore at Wilson's Burlington, N. C., plant. **W. W. Sharp, Jr.**, of Greensboro, N. C., secretary and general manager of Siler City, N. C., plant, of Mock-Judson-Voehringer, Inc., effective Nov. 1, has resigned to become assistant to the president of Rufus D. Wilson, Inc., in charge of production of the company's plants in Burlington, Gibsonville, and Shenandoah, Va.

Wilbur K. Rhoades has resigned as cloth buyer for the cotton and rayon division of Pacific Mills, New York, effective Dec. 1, after 25 years with the company. He will be succeeded by **Donald Brigham** who will continue to be in charge of the planning department in addition to his new duties as cloth buyer. Mr. Rhoades plans to return to New England to open his own office as mill representative and broker in cloth and yarns. He will operate under the name of Rhoades & Smith.

Frank K. Petrea, who has been manager of Samoset Cotton Mills, Talladega, Ala., for five years, and prior to that time superintendent of Swift Mfg. Co., Columbus, Ga., for 20 years, has been appointed superintendent of Pomona Mfg. Co., Greensboro, N. C., to succeed **G. W. Dobbins**, who resigned to accept a position with the Pee Dee Mfg. Co., Rockingham, N. C.

Culver Batson, formerly superintendent of Consolidated Textile Corp., Lynchburg, Va., has become general superintendent of Chadwick-Hoskins Co., Charlotte, N. C., succeeding **M. Weldon Rogers**, who has accepted a similar position with Jackson Mills, which has units at Iva and Welford, S. C., and High Shoals, N. C. Mr. Rogers succeeds G. L. Chandler.

A. Falls Garrison, who has been associated with the Hartwell (Ga.) Mills since 1926 in several capacities, has been made general manager and a member of the board of directors of the mills.

E. B. Shaw has succeeded **David Moxon**, resigned, as agent for the Willimantic, Conn., plant of American Thread Co. **C. W. Hill** succeeds Mr. Shaw as assistant agent and continues as plant manager.

LaRue Hendrixson, for the last five years production control manager of American Viscose Corp., with headquarters at the Wilmington, Del., office, has been appointed pro-

TEXTILE BANKING COMPANY

Factoring Service

Puts your sales on a cash basis
Strengthens your cash position
Relieves you of credit losses

55 MADISON AVENUE • NEW YORK

OFF TO SEA IN HIS NAVY BLUE!

He's a sea-going fighting man, a vital part of a great American tradition. A symbol of his service is famous NAVY BLUE—adopted in 1776 as the winter "dress" uniform of the Navy's officers and enlisted men.

Solvay Sodium Nitrite is a pure, high quality crystal—distinctive because it tends to remain free-flowing. It is especially suited for the manufacture of dyes used in BLUES, WOOLS and the HEAVY uniforms of our armed forces.

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SODIUM NITRITE

duction manager. He will be in charge of production equipment at the company's viscose process rayon plants and will direct the improvement of operating techniques. **Gordon Brain**, who for the last four years has been Mr. Hendrixson's assistant, succeeds him as production control manager.

Radley Sheldrick has been appointed agent for Hayward Woolen Co., East Douglas, Mass. He was formerly with Geo. E. Duffy Mfg. Co., Worcester, Mass.

Frank H. Carman will assume the position of general manager of Plastics Materials Manufacturers' Association, Washington, D. C., effective Jan. 1, 1944. Mr. Carman has been with WPB in Washington since 1941. Originally appointed to handle the allocation of Neoprene, he was responsible for allocations of all synthetic rubbers and vinyl polymers until August 1943.

George W. Ray has resigned as general superintendent of the spinning, winding and warp preparation departments of Judson Mills, Greenville, S. C., and has been succeeded by **W. S. Patton** who has been promoted from his assistant.

Dr. Austin G. Edison, identified with the design and operation of the Du Pont Nylon plants from the beginning of the development, has been appointed technical manager in the Nylon research section. He succeeds **Dr. Louis L. Larson**, who has been transferred to a special assignment in the Explosives Department.

John J. Higgins has been appointed western division credit manager for Alexander Smith & Sons Carpet Co. and the Masland Carpet Mills, with headquarters at 1151 So. Broadway, Los Angeles. Mr. Higgins was formerly assistant to **Carl Jolliffe**, general credit manager. **Medrick Johnson** has been made the central division credit manager, with headquarters in Chicago.

Dr. Edward F. Wesp, rayon research manager in Buffalo for the E. I. du Pont de Nemours & Co., has been appointed assistant director of viscose rayon research for the entire company. His headquarters will be in Richmond, Va., and he will have charge of the viscose rayon research laboratories there and in Buffalo. In his new position he succeeds **Dr. Lester S. Sinness**, who has been named director of viscose rayon research for the company.

John E. Spalding, assistant to Dr. Dan B. Wicker, in charge of American Viscose Corp's. Fibro rayon staple fiber pilot plant at Nitro, W. Va., has been appointed acting manufacturing superintendent of the plant, and will assume the duties of **Charles Hendrixson, Jr.**, for the period of the latter's military leave.

Llewellyn Harries, recently retired Army captain, has been appointed manager of the Sales Promotion Division of the National Retail Dry Goods Association. He succeeds **Richard G. Maybohm.**

H. C. Rollins has resigned as superintendent of the Cliffside Mills, Avondale, N. C., plant, to become associated with the Carter Fabrics Co., Inc., Greensboro, N. C. He has been succeeded by **J. L. Beard.**

Arthur W. Proulx, overseer at Somersworth (N. H.) Mfg. Co., has been elected mayor of that city. He was the Democratic candidate, unopposed in the municipal election.

J. M. Gaston, formerly superintendent of spinning of the Eagle & Phenix Mills, Columbus, Ga., has accepted a similar position with Brighton Mills, Inc., Shannon, Ga.

H. B. Miller has resigned as superintendent of American Spinning Co., Greenville, S. C., a division of Florence Mills, and has been succeeded by **W. W. Rogers**, formerly superintendent of **F. W. Poe** Mfg. Co., Greenville.

S. L. Deane has become general superintendent of San Antonio Cotton Mills, Southton, Tex.

George W. Blackburn has accepted the superintendency of Dallas (Tex.) Cotton Mills.

Norman G. Glattfelter has resigned his position as superintendent of the Elberton (Ga.) Cotton Mills, and become general manager of Brooks Bros. Mills and Southern Pile Fabric Co.

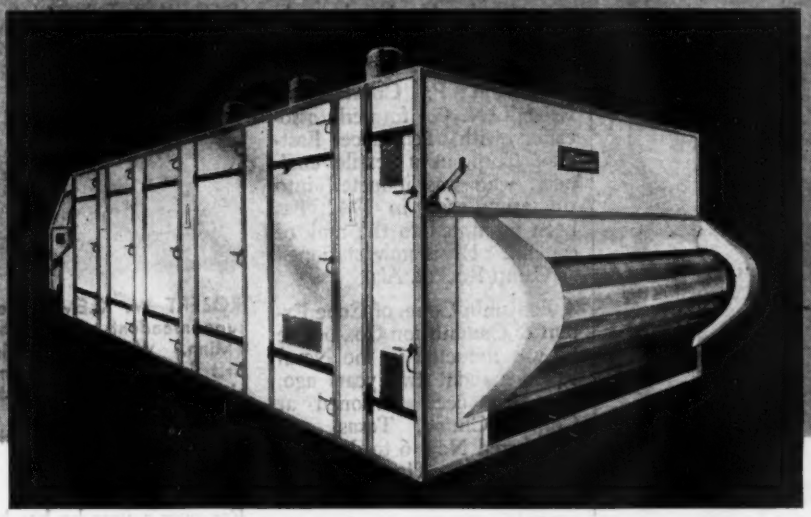
M. T. Hartsell, superintendent of carding and spinning at Kindley Cotton Mills, McAdenville, N. C., has resigned.

R. F. Mills, formerly superintendent of spinning at Samoset Cotton Mills, Talladega, Ala., has become head of the carding and spinning departments of Saratoga Victory Mills, Guntersville, Ala.

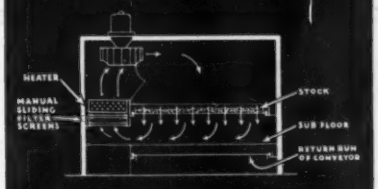
H. V. Murdough, formerly connected with Highland Mills, Griffin, Ga., has assumed new duties as superintendent of Industrial Cotton Mills, Rock Hill, S. C. He succeeds **J. A. Wooten.**

SPEEDY...CORRECT...ECONOMICAL DRYING WITH THE

PROCTOR IMPACT DRYER



The Proctor Impact Dryer, shown at the left, is a Continuous Conveyor Dryer for the speedy, correct, economical drying of dyed or bleached cotton stock, cotton linters, acetate rayon staple, dyed wool and other similar fibers.



To meet the demands of the textile industry for a compact dryer that would dry fibrous material uniformly and in large quantities, Proctor & Schwartz developed the Impact Type Dryer. The principle of impact drying, in which heated air is impinged at high velocity on the material as it moves through the dryer, makes possible the removal of moisture with uniformity and at high speed.

After dyeing, bleaching or other preliminary treatment, mechanical dewatering of the fiber is accomplished by one of various methods. The fiber is then put into the automatic rotary type feed, which delivers a uniform flow of material to the dryer. The spiked drum of this new rotary feed is run at high surface speeds and consequently is able to feed enough material to meet the increased capacity of the dryer. The feeder distributes an even layer of fibers on the conveyor, which is made up of perforated metal plates hinged together, carried through the dryer by heavy steel side bar chains on large steel rollers. Speed of the conveyor is easily regulated by a simple hand wheel adjustment. Because of a unique concentration of the drying medium, this dryer operates in a minimum of floor space for its large output.

One of the most important features of the Proctor Impact Dryer is the system of air-circulation. Heated air is impinged intermittently at a high velocity on the material as it moves through the dryer. This agitates the stock, keeping it in motion during the drying process. In this way absolutely uniform drying is accomplished on top, bottom and all the way through.

PROCTOR IMPACT DRYERS

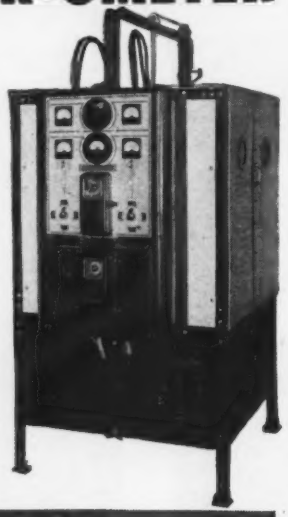
Manufactured by

PROCTOR & SCHWARTZ · Inc · Philadelphia

Mill operators know what the ATLAS FADE-OMETER and LAUNDER-OMETER have done for the textile industry in predetermining the fastness to light and washing of textiles.

ATLAS WEATHER-OMETER

now has taken an equally important place in the industry for testing fabrics exposed to weathering under war conditions. The Weather-Ometer will accommodate large size specimens to meet the Federal specifications demanding accelerated tests.



ATLAS ELECTRIC DEVICES CO.
361 W. Superior St.
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ATLAS-OMETERS
WEATHER-OMETER
LAUNDER-OMETER ★ FADE-OMETER

MOISTURE CONTROL

Rapid
Accurate
with the
DIETERT MOISTURE TELLER

RAW STOCK
COTTON
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SILK
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ETC.

Here's an inexpensive, practical moisture tester and control. Assures savings in processing time, reduces rejections, and improves product quality. Write for literature on Moisture testing by drying.

HARRY W. DIETERT CO.
9330 ROSELAWN DETROIT, MICH.

Textile Men in Armed Services

William W. Goodman, vice-president and treasurer of American Finishing Co., Memphis, Tenn., has been promoted to the rank of lieutenant-colonel. He has been in the Army Air Forces headquarters staff in Washington.

William P. Crawley, of Raleigh, N. C., formerly associated with Tennessee Eastman Corp. as a textile engineer, who was inducted into the army early in 1942, has been promoted to the rank of captain. He is now stationed at Camp Rucker, Ala.

Benjamin Cone, of Cone Export & Commission Co., before he was inducted in the Naval Reserve about two years ago, who has been stationed at Corpus Christi, Texas, was transferred Nov. 6 to duties in Washington. He is a lieutenant.

Wilson L. Benton, formerly assistant production manager of Hatch Full-Fashioned Hosiery Co., Belmont, N. C., is now a first lieutenant in the Air Service Command.

A. Winston Edwards, formerly with John Campbell & Co., New York, and now at Jeffersonville QM Depot, has been promoted to rank of captain.

Rex A. Rice, secretary and vice president of the Blair Mills, Belton, S. C., serving with the U. S. Army Air Forces as lieutenant somewhere in the European theater of war, is reported as missing in action.

C. L. Rosenquist formerly a sales engineer with the Union Special Machine Co., Chicago, Ill., has been promoted to rank of lieutenant (s. g.) in the Supply Corps of the Navy.

C. L. ROSENQUIST, Union Special Machine Co., who is now lieutenant (s.g.) in the Navy.

ROBERT W. KLEMER, recently superintendent of Faribault (Minn.) Woolen Mills, is now first lieutenant in the Army, assigned to Philadelphia QM Depot as assistant to the officer in charge of textile inspection.

For over a year he has been a purchasing officer in the Clothing Division, Bureau of Supplies & Accounts, Washington, D. C., of which Capt. W. A. Best is the officer in charge.

P. R. Moore, president-on-leave of Klearflax Linen Rug Co., Duluth, Minn., has lately been promoted to major and is in charge of Lend-Lease allocations of heavy goods in Washington.

Ward Cheney, president-on-leave of Cheney Bros., New York, now lieutenant commander in the Navy has received the Legion of Merit from Admiral Halsey for outstanding service on the staff of the commander of the South Pacific Force.

Charles Bertland, formerly with A. M. Tenney Associates, New York, has been promoted to captain in Army Air Forces. He is stationed in England.

Richard W. Dunn, formerly with Whitin Machine Works, Whitinsville, Mass., has been promoted to major. He is in Army Air Forces, attached to the Northwest Africa Troop Carrier Command.

Ernest T. Boger, formerly vice president in charge of the Lincolnton, N. C., plant of Boger & Crawford, Philadelphia, is now in charge of a section of American Field Service Ambulances attached to the British Eighth Army in Italy. Mr. Boger, son of the late Robert C. Boger, one of the founders of Boger & Crawford,

Whose Market?

THERE is no such thing as a market that favors either buyer or seller exclusively . . . it favors both or none.

When the buying end of business cannot get raw materials, manpower, containers, or whatever is necessary for the production of finished goods, the selling end cannot make shipments to customers on schedule.

It takes both buyers and sellers to make a business, and *teamwork* to make a success of it. So . . . let's not delude ourselves that these difficult times are a paradise for so-called "sellers." We are all confronted with identical problems and we will have to work them out together. *Together,* we can work them out best.

Note Our New Address!

NATIONAL STARCH PRODUCTS
INCORPORATED
270 MADISON AVENUE, NEW YORK 16, N. Y.
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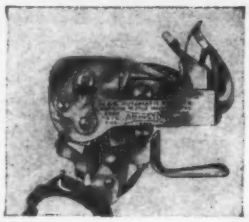
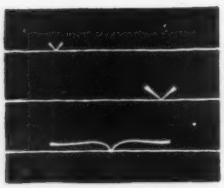
"Non-slip knots EVERY TIME, even by learners, are assured by the

ABINGTON WEAVER'S KNOTTER

Automatically ties a weaver's knot and scissor-clips the tails uniformly to a predetermined length. May be set to clip tails from ¼" down to minus 1/16". Two series handle all counts. Knots are positively non-slip, and very compact, so small as to be acceptable in thread and in yarns for fabrics required to take a blister-free coating. Use this Knotter to overcome training problems, and aid maximum winder production.





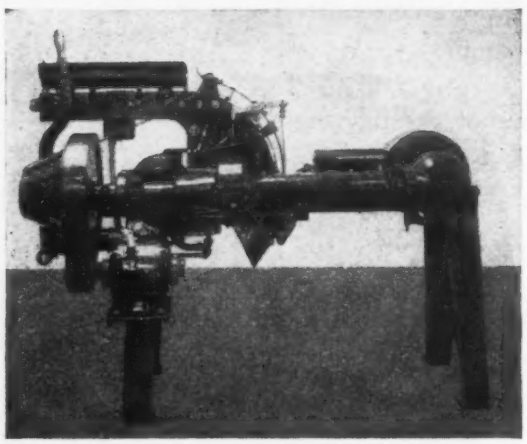
REQUEST STRIPPER CATALOG

ABINGTON

ABINGTON TEXTILE MCHY. WKS., ABINGTON, MASS.

Vacuum Card Strippers – Yarn Dyeing Systems – Weaver's Knotters

OFFICES AT BOSTON, MASS. • CHARLOTTE, N. C.



THE TYPE K
BOBBIN STRIPPER

HIGH CLEANING CAPACITY
Protects barrel and finish. Usually pays for itself in one year—always within 18 months.

Complete information promptly furnished upon request

The **Terrel Machine Co.,** *Inc.*
CHARLOTTE, N. C.

W. J. Westaway Co., Ltd. . Hamilton and Montreal, Canada
James F. Notman . . . . Needham, Mass.—N. E. States
E. W. S. Jasper, Inc., Elizabeth, N. J.—Penna., N. J. and N. Y.
Geo. Thomas & Co. . Manchester, England—European Agt.

went to the Middle East more than a year ago as a volunteer driver and recently was promoted to corporal. He was commended for outstanding service during the final phases of the Tunisian campaign.

Oliver D. Landis, lieutenant, U. S. Navy, for many years sales representative for the Graton & Knight Co., has been transferred to the Naval Gunnery School at Hollywood, Fla., after several months' duty in the South Pacific war zone.

S. Reed Anthony, associated with the Charlotte, N. C., sales office of the American Viscose Corp. before joining the U. S. Navy as lieutenant (j.g.) in July 1942, has been promoted to lieutenant (s.g.).

Daniel A. Davis, of American Viscose Corp's New York office, has been promoted to the rank of lieutenant (j.g.). Lieutenant Davis joined the service in May, 1942.

John G. Boyle, on leave from the office of the Eagle & Phenix Mills, Atlanta, Ga., who is now stationed somewhere in North Africa, has been promoted to technician fifth grade.

James H. Bulkley, Spartanburg, S. C., who was with the New York selling agency of Mooresville (N. C.) Cotton Mills before he entered the service in February, and who is now stationed in Iran, has been promoted to major.

Charles Hendrixson, Jr., manufacturing superintendent of the Nitro, W. Va., plant of the American Viscose Corp., has been granted military leave to commence Dec. 15.

Obituary

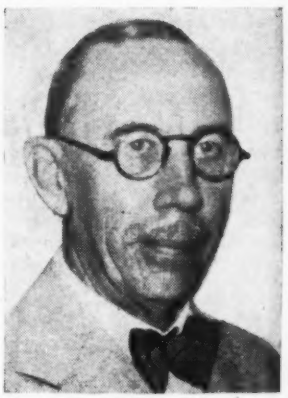
Thomas Peyton Moore, 83, prominent retired textile manufacturer of Morganton, N. C., died Nov. 16 at Charlotte, N. C. He was a native of York, S. C., and began textile manufacture in Morganton and York. In 1905 he built the Neely Mfg. Co. in York and the Lockmore Cotton Mills. He was president and treasurer of both these plants. He was a resident of Washington, D. C., for 27 years.

William T. Cole, 82, retired president and director of Fabric Fire Hose Co., Sandy Hook, Conn., died recently. Mr. Cole was born in Paterson, N. J. He established a silk manufacturing business under the name of Cole & Knapp and in 1890 withdrew from the firm to join the Fabric Fire Hose Co., then in New York. The company was moved to Sandy Hook in 1900. His son is now president of the company.

Clarence E. Stone, Sr., 70, president of the American Textile Engraving Co., Greenville, S. C., died recently. Interment was at Magog, Quebec, Canada.

William H. Hendel, 76, died Oct. 21 in Reading, Pa. He was president and general manager of William H. Hendel, Inc., Shillington, Pa.

Birger Anderson Stigen, 71, manager of the Charlotte, N. C., branch of the General Dyestuff Corp., New York, and long a prominent figure in textile chemical circles, died recently. A native of Sweden, he came to this country in 1901.



B. ANDERSON STIGEN, General Dyestuff Corp.

Joseph H. Windle, 60, president and treasurer of J. H. Windle & Co., Providence, R. I., died Nov. 22. After association with Saco-Pettee Shops, Draper Corp. and C. R. Makepeace & Co., he became in 1918 northern and foreign sales agent for Fales & Jenks Machine Co., Easton & Burnham Machine Co. and Woonsocket Machine & Press Co. In 1936 he organized his own business, dealing in used textile machinery of every type.

Howard M. Fry, 74, one of the original officers of the Narrow Fabric Co., Wyomissing, Pa., previously secretary and manager and lately vice president, died recently.

PENN SALT CAUSTIC SODA

Prompt shipments in tank cars specially designed for fast, easy, safe unloading

● Order your caustic soda from Penn Salt and enjoy the advantages of quick shipment, clean caustic and speedier handling

Penn Salt's special tank cars are built with protective lining, special draining plates and caustic-resistant valves and interior connections. Steam heating coils do *not* contact the caustic soda—eliminating possible contamination.

The improved, insulated design assures *fluid* caustic in cold weather. And the easily accessible fittings save unloading time and prevent waste. Furthermore, the dome safety platform and guard railing protect your workmen.

Penn Salt caustic soda is available in tank car quantities as 50% and 72-73% solutions . . . as a solid in 750 lb. drums . . . or in flake form in 400 lb. and 125 lb. drums.

Technical help on any handling problem without obligation. Write for complete information about Penn Salt caustic soda.

PENNSYLVANIA SALT
MANUFACTURING COMPANY
Chemicals
1000 WIDENER BUILDING, PHILADELPHIA 7, PA.
New York • Chicago • St. Louis • Pittsburgh • Minneapolis
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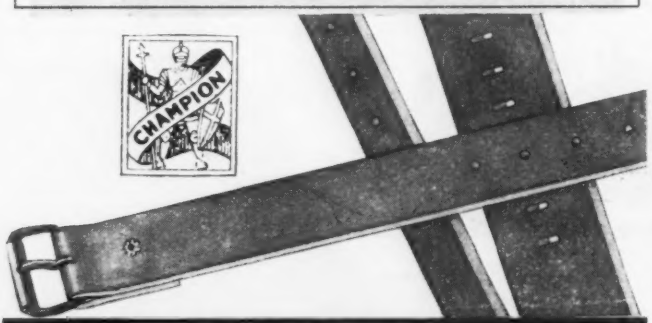
LOOM STRAPPING

Every order for Champion Leathers is a special job, tailored to specifications yet produced under conditions of skill, experience, and modern equipment that rivals production line economy.



W. D. DODENHOFF COMPANY
619 RUTHERFORD STREET
GREENVILLE, SOUTH CAROLINA

FIDELITY 9-SKEIN REELER

Single- and Double-End Types. Collapsible arms on reel, automatic yardage control and improved tension device. Reduced doffing cycle with Twin-Unit System.

Write for Bulletin

FIDELITY MACHINE COMPANY
3908-18 FRANKFORD AVE., PHILADELPHIA, PA.

NEWS ABOUT MEN

David P. Bryson, 52, president of National Velvet Co., New York, died recently. Before organizing his own firm he was vice-president of H. R. Mallinson & Co.

Laurance Mayer, 54, president of Rollins Hosiery Mills, Des Moines, Iowa, died recently.

Robert F. Violet, lieutenant in Army Air Corps, and formerly with Schuster Woolen Co., East Douglas, Mass., has been killed in action in the Southwest Pacific.

Thomas A. Yates, 43, executive vice president of Yates Bleachery Co., Flintstone, Ga., died recently.

Richard F. Ferguson, for 25 years secretary of the Beaumont Mfg. Co., Spartanburg, S. C., died Oct. 24.

Arthur S. Thayer, former vice president of Allen A Hosiery Co., New Ipswich, N. H., and Bennington, Vt., died Nov. 12 in New Ipswich.

Edmund L. Pemberton, 83, for more than 30 years representative for National Aniline Division of Allied Chemical & Dye Corp., until his retirement a few years ago, died at Fayetteville, N. C., recently.

Henry L. Hinnant, 53, office manager of Bamberg (S. C.) plant of Santee Cotton Mills, died Nov. 2.

B. Stanley Hart, 52, representative of the North American Rayon Corp., with headquarters in Greenville, S. C., died recently.

R. E. Douglass, 47, Atlanta, Ga., textile mill representative, formerly wiith Pacific Mills, and prior to that with Marshall Field & Co., died recently.

Walter D. Chilton, 57, superintendent of night carding at Chiquola Mfg. Co., Honea Path, S. C., died Nov. 11.

Isaac Boyce Covington, 65, who helped build the Wade Mfg. Co., Wadesboro, N. C., about 1923, and who became its superintendent holding that position until he retired several months ago, died last month.

Edmund Winchester Converse, Jr., 85, Boston, Mass., cotton and wool broker, died Oct. 14 in New London, N. H. Mr. Converse retired from active business 15 years ago.

Lacy H. Sellars, 68, died Oct. 29 in Greensboro, N. C. For the last 40 years he had been associated with the Cone Export & Commission Company. During the last 33 years he had been an officer of the company, acting as second vice-president. Prior to holding that office, he was secretary of the corporation.

MAJ. CHARLES T. GRIFFITH of Proctor & Schwartz, whose death was reported in this column last month.

D. Hamp Morris, Jr., 58, president of Geneva (Ala.) Cotton Mills and a member of the partnership of Montgomery (Ala.) Cotton Mills and Bama Cotton Mills, Enterprise, Ala., died Nov. 26 in Geneva, Ala. He had been active in the industry for many years and was president of the Alabama Cotton Manufacturers Association.

Elmo Murray Sellars, 66, Greensboro, N. C., for 30 years with the Cone Export & Commission Co., until his retirement in 1939, died Oct. 23 in Greensboro. He was a brother of Lacy H. Sellers, who died Oct. 29.

Charles C. Van Stry, eastern sales engineer of Cameron Machine Co., Brooklyn, N. Y., died recently.

Patrick J. Barrett, 80, for 12 years overseer of the Berkshire Fine Spinning Associates, Inc., and for 25 years in the same post at Flint Mills, Fall River, Mass., died at his home in that city Nov. 10. He was a native of England and retired two years ago. For over 20 years he was a member of the Fall River Park Commission.

Thomas F. Keefe, 58, overseer of dyeing at the Sawyer branch of American Woolen Co., Dover, N. H., is dead. He succeeded his father, John Keefe, as head of the mill department.

Benjamin Few Zimmerman, 71, for the last 28 years head of cotton departments of Drayton Mills and Spartan Mills, Spartanburg, S. C., and previously with Parker Cotton Mills Co., died recently.

Walter J. Gibbons, 32, for about ten months with the Central Falls Mfg. Co., near Asheboro, N. C., a branch of Burlington Mills Corp., Greensboro, doing time-studies, methods and standards, died Nov. 10.

"SPEEDI-DRI

is the one, certain solution,"

writes

Albert E. Otto, General Manager,
PUTNAM WOOLEN CORPORATION

From our current flood of commendatory letters from users of SPEEDI-DRI, we quote from one written to us by Albert E. Otto of the Putnam Woolen Corporation, Putnam, Conn.:

"SPEEDI-DRI is being used in our plant on all oily floors. After several years of trying out various methods of taking oil off the floors, we have reached the firm conviction that SPEEDI-DRI is the one, certain solution to this problem. We have used this product 100% for many months and it has worked to our complete satisfaction. I recommend it whole-heartedly."

And well you may, Mr. Otto, for you have plenty of company. Many textile plants now use SPEEDI-DRI to the exclusion of all other products for the following uses:

(1) Preventing oil from seeping through floors onto workers below, by banking SPEEDI-DRI at the base of looms, around machine legs, and spreading it under mules.
(2) Soaking up oil and grease from floors and machines in carding, spinning, weaving, and finishing rooms.
(3) Providing an immediate non-skid surface.
(4) Minimizing the fire hazard.
(5) Increasing plant-visibility by light reflection.
(6) Saving vital manpower. This becomes an increasing problem.
(7) Saving time and money.
(8) Reducing slipping and falling accidents and, consequently, cutting insurance costs.
(9) Improving worker-morale—especially among women.

SAVE VITAL MAN-POWER

What a lot you get for your money when you buy SPEEDI-DRI! Want to try it—at our expense? Write for a demonstration or a free sample. (If water or water-soluble oils are used, ask for SOL-SPEEDI-DRI.)

A priority-free product with unlimited supply. Adequate warehouse stocks in principal cities. Write us at once!

SPEEDI-DRI
OIL AND GREASE ABSORBENT

SUPPLIERS

East
REFINERS LUBRICATING CO.
New York 1, N. Y.

Midwest and South
WAVERLY PETROLEUM PRODUCTS CO.
Philadelphia 6, Pa.

West Coast
WAVERLY PETROLEUM PRODUCTS CO.
Russ Building, San Francisco 4, Calif.

Prompt Service from Warehouse Stocks in Leading Cities

HERE'S *a suggestion to ease the Red Oil situation!*

USE
TALL OIL

Tall Oil is being used more and more in textile soaps because of existing shortages of Red Oil.

Tall Oil is a domestic product derived from wood pulp in sufficient tonnages to assist immeasurably in extending Red Oil supplies. FDO 53 has now been in effect almost six months and because of the large demands for Red Oil in essential war work the remaining reduced supply is being strictly allocated. It is not intended that Tall Oil should entirely replace Red Oil in your soap formulas but it is suggested that it be used to extend Red Oil and thus permit Red Oil to continue its important work in the production of essential war products. Textile Manufacturers making their own soaps and Soapmakers specializing in textile soaps should investigate the possibilities offered by Tall Oil. The range of analyses of both Liqro (crude) and Indusoil (refined) Tall Oils is as follows:

PHYSICAL DATA	Liqro	Indusoil
Specific Gravity 60°F/60°F	0.97-0.99	0.96-0.98
Pour point, not over, °F	45	—
Viscosity — Saybolt Universal at 210 °F —Seconds	95-120	50-70
Flash Point, °F	350-370	350-380
Fire Point, °F	410-430	410-430
Color	Brown	
Lovibond using half column— Yellow—not more than		70
Red — not more than		40
Moisture—less than, %	0.4	0.1

CHEMICAL DATA	Liqro	Indusoil
Acid Number	160-170	170-180
Saponification Number	165-175	170-185
Rosin Acids Number	80-90	63-71
Iodine Number (WIJS)	140-150	—
Ash—Less than, %	0.4	0.1
ANALYSIS		
Fatty Acids, %	45-50	55-60
Rosin Acids, % Calc. as Abietic	42-48	34-38
Sterols, Higher Alcohols, etc. %	6-9	6-10

Samples and Literature Upon Request

INDUSTRIAL CHEMICAL SALES

DIVISION WEST VIRGINIA PULP & PAPER CO.

230 Park Avenue, New York 17, N. Y. | 35 E. Wacker Drive, Chicago 1, Illinois | 748 Public Ledger Bldg., Philadelphia 6, Pa. | 844 Leader Bldg., Cleveland 14, Ohio

NOW!
RED-RAY
RADIANT BURNER
FOR
TENTERS
PALMERS
RESIN CURING OVENS
LOOP AND NET DRYERS
SLASHERS — SINGEING MACHINES
Speeds increased two to five times. Costs per yard lowered. Increased yardage handled on existing machines obtained without major changes. Burners quickly installed on present machines.
Write for bulletin and complete information.
RED-RAY MANUFACTURING CO.
455 WEST 45th STREET NEW YORK CITY
Southern Representatives:
CAROLINA SPECIALTY COMPANY
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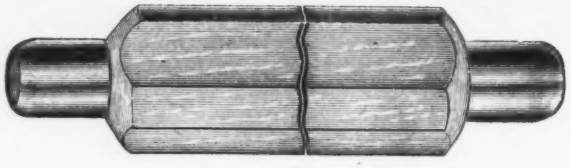
DYE STICKS
Since 1900 we have made high quality true-form oven-seasoned dye sticks for all standard machines. We can fill your needs today to meet any requirement. Write
FRANK BAILEY Cedar Brook, N. J.

PENETRANTS • DETERGENTS
REPELLENTS • SOFTENERS
FINISHES

BURKART-SCHIER CHEMICAL CO.
CHATTANOOGA, TENNESSEE

TEXTILE MILL NEWS

Cotton Mill News

Bennettsville (S. C.) **Cotton Mills**, which proposes to manufacture and deal in cotton, cotton fabrics, etc., has been incorporated with authorized capital of $100,000. E. H. Schulenberg is president; W. R. Crabtree and H. L. Swain, vice-presidents; Harold Mull, secretary; G. T. Bolingbroke, treasurer; J. W. Rankin, assistant treasurer; G. T. Bolingbroke, assistant secretary.

Bibb Mfg. Co. reports net profit for year ended Aug. 31, 1943, of $2,172,096 after Federal income taxes of $8,710,000 and other charges. This compares with $2,593,473, after $10,807,292 for Federal taxes and reserve, in previous fiscal year.

Carolina Textile Mills, Inc., Los Angeles, Calif., care of Norman Soibelman, 608 South Hill St., has been chartered with capital of $25,000 to manufacture of cotton specialties.

Collins & Aikman Corp., New York, N. Y., has purchased mill of Norwood (N. C.) Mfg. Co., manufacturer of cotton yarns, and will improve and convert for new branch mill.

Goodyear Decatur Mills, Decatur, Ala., subsidiary of Goodyear Tire & Rubber Co., Akron, Ohio, has begun erection of new addition to local mill, to total about 140,000 sq. ft. of floor area, as previously reported, for which general contract recently was awarded to A. K. Adams Co., Atlanta, Ga. Project has a high priority rating. Cost reported close to $1,000,000, with machinery.

Goodyear Fabric Corp. has leased the property of the former Nyanza Mills, Woonsocket, R. I., with option to purchase at $200,000. It is planned to operate the mill on a permanent basis. About 200 workers, it is expected, will be employed.

Hudson Lace & Embroidery Works, Inc., 506 34th St., Union City, N. J., has purchased a two-story industrial building on local site at 4100 Hudson Blvd., and will use for expansion.

International Braid Co., New York, N. Y. (with plants in Providence, R. I.), has purchased industrial building at 245 Crooks Ave., Paterson, N. J., previously owned and used by U. S. Varnished Tile Co., approximating 25,000 sq. ft. of floor space, and will remodel and equip for immediate occupancy.

Nu Batts Corp., Brooklyn, N. Y., organized to manufacture cotton batting and kindred products, has leased local four-story industrial building at Moore and Siegel Sts., and will use for plant, providing facilities for extensive output.

Pearl Mills, Boiling Springs, N. C., manufacturers of coarse yarns, recently acquired a building for a new mill and will operate approximately 2,100 spindles and auxiliary equipment. R. J. Woods, of Buffalo Mills, Waco, N. C., will be in charge of operations.

Reynolds Metals Co., Richmond, Va., will convert part of plant of Charter Oak Stove & Range Co., St. Louis, recently acquired, for a cotton processing mill, for manufacture of insulation materials, a new line of production for company.

Samoset Cotton Mills Corp., Talladega, Ala., was offered for sale as a going concern by a trustee in bankruptcy on Dec. 13.

Springs Cotton Mills, Eureka plant, Chester, S. C., are installing 48 cards to speed up production. They are being transferred from a plant of the Springs Cotton Mills at Fort Mill, S. C. This plant is on 100% war production.

Tolar, Hart & Holt Mills, Inc., Fayetteville, N. C., have plans under way for a postwar development program at mill, including facilities for increased capacity and modernization of present plant.

U. S. Rubber Co., New Bedford, Mass., has reconverted its local Fisk Cord Mills from duck manufacture to regular tire-cord manufacture, and will operate on a capacity schedule for latter material. Branch mill at Shelbyville, Tenn., similarly has reverted to regular tire cord production, as well as chafer fabric manufacture.

Wool Mill News

Bigelow-Sanford Carpet Co., Amsterdam, N. Y., now operating at close to 80% for production of war materials, both at local mill and plant at Thompsonville, Conn., is perfecting plans for reconversion of mills to regular production as soon as war is over, and such work will be carried out in a short period of time.

Carleigh Mills Co. plant at Raleigh, N. C., is now occu-

"...and everywhere that Mary went..."

"EVERYWHERE" is not strictly true, of course, because the trident truck that we refer to would hardly "follow her to school one day". However, when Mary is working on the Automatic Spooler, this truck is almost as faithful as the lamb in our childhood poem. As Mary moves along, filling empty bobbin pockets, taking off full cheeses, and putting on starters, the truck is always by her side. It runs on ball bearing wheels on a track in the floor and a gentle push on a padded, spring-mounted bumper is all Mary has to give to nudge it along as she works. This truck carries two tridents, each of which will hold 15 full cheeses or starters. Also, it is the same height as the trident transfer table, so Mary can slide the full tridents off without any heavy lifting. . . . This is one of the many ways in which we took into consideration convenience for the operators when we designed the Automatic Spooler. And it is one of the reasons why operators on Automatic Spoolers are able to turn out more war goods, faster, with less effort.

For Example . . .

The following production figures are taken from the spooler department of a mill now running goods for war purposes:

Count	31s
Ring	1¾"
Traverse	7"
Pounds per hour per Spooler	415
Beams per cheese at 29,000 yds. per Beam	2

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • TWISTER CREELS • MOISTURE CONTENT CONTROLS

BARBER-COLMAN COMPANY

ROCKFORD, ILLINOIS, U. S. A.

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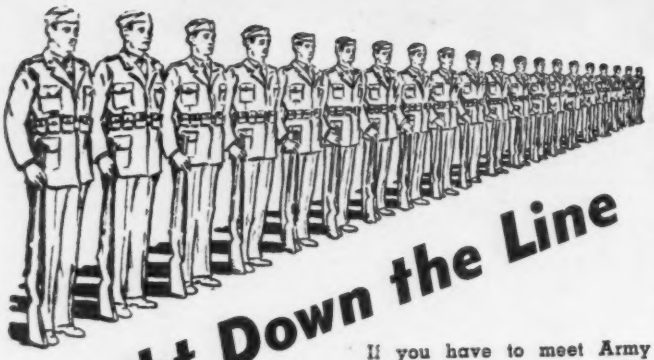


Right Down the Line

If you have to meet Army Quartermaster Department specifications your fabrics will show a big improvement right down the line if you use

DRUMMOND SOAP

It's a high-body product of low alkali content . . . No filler of any kind . . . A high binding quality that results in minimum flocking . . . Saves on steam and water because it rinses easily and completely . . . Better fulling and scouring . . . Leaves fabric perfectly clean with softest feel, better hand, brighter colors and whiter whites . . . Want to try it? Just write us today for a free working sample and test Drummond Soap on your own goods.

If you can't shoot Japs shoot the works
—BUY MORE BONDS

Standard Soap co. of camden

205 South 2nd St. Camden, N. J.

Woonsocket, R. I. G. TANGUAY 251 HARRIS AVE.

TESTING PUTS YOU A STEP AHEAD

With an adequate testing routine in purchasing, research, production and acceptance-inspection, you anticipate and eliminate many of the unusual manufacturing difficulties of the current situation. Rely on the 60 models of *Scott Testers for tensile, hysteresis, flexing, crepeage, twist, etc., etc., in capacities from single hair to 1 ton.

SCOTT TESTERS

*Registered Trademark

HENRY L. SCOTT CO. 95 Blackstone St. Providence, R. I.

NOVELTY-YARNS
For
WEAVERS-KNITTERS

MONTGOMERY
WINDSOR LOCKS, CONN.
Designers and Spinners of Novelty Yarns

pied by the Premier Worsted Co., operating 4,800 spindles and 48 looms. Herbert Lawton is president of Premier Worsted and J. M. Shockley is plant superintendent.

Elmvale Worsted Co., Pittsfield, Mass., has work under way on one-story addition, for which general contract recently was let to A. L. Phelps Co., Springfield, Mass.

Goodall Worsted Co. reports net profit after charges for fiscal year ended July 31, 1943, of $690,510, compared with $1,258,311 for preceding fiscal year.

Huntingdon (Ont.) Woolen Mills, Ltd., recently organized, is reported planning new one-story mill, estimated to cost close to $50,000, with equipment.

Livingston Worsted Mills, Holyoke, Mass., have work under way on one-story addition, for which general contract recently was awarded to Casper Ranger Construction Co., Holyoke.

Madison Spinning Co., Philadelphia, Pa., has taken over four-story mill at Emerald and Westmoreland Sts., formerly used by Ellis Hosiery Co., and will occupy for expansion in storage and distribution departments. Structure totals about 40,000 sq. ft. of floor space and was purchased for a reported sum of $20,000.

Merrill (Wis.) Woolen Mills plans to double its productive capacity.

Murray Worsted Spinning Co., Woonsocket, R. I., recently organized with capital of 100 shares of stock, no par value, plans operation of a local mill. New company is headed by J. Warner Murray, Woonsocket; and Francis P. Smith, Woonsocket.

Rayon & Silk Mill News

American Real Silk, Inc., Los Angeles, Calif., care of Verle N. Fry, 215 West 6th St., Los Angeles, attorney and representative, has been incorporated with capital of $500,000, to operate a silk and rayon throwing mill. Location of proposed mill has not been announced. R. M. Anderson is one of incorporators.

American Viscose Corp., Wilmington, Del., will carry out expansion in rayon mills at Parkersburg, W. Va., and Lewistown, Pa., for increased output in weaving and twisting divisions. Available floor space will be used for installation of additional equipment. Project will have a priority rating from WPB.

Amoskeag-Lawrence Mills, Inc., Manchester, N. H., had a spectacular fire which caused widespread damage throughout three floors recently. The blaze was believed to have started in the picker room.

Atlantic Rayon Corp., Providence, R. I., through its president, Royal Little, is reported to have concluded arrangements for purchase of plant of Nemasket Mill Division of Hoosac Mills Corp., Taunton, Mass., and will continue production of spun rayon yarns, as heretofore.

Barnert Mills, Paterson, N. J., a silk manufacturing plant has been bought by Commercial Associates, Inc. for $75,000.

E. I. du Pont de Nemours & Co., Rayon Division, Amphill, near Richmond, Va. (previously reported), has contracted with Defense Plant Corp., Washington, D. C., for financing in amount of $2,750,000, for expansion at mill. It is understood that work, now being placed under way, will cost about this sum instead of larger amount, previously noted.

Enton Fabrics Co., Providence, R. I., recently chartered with capital of $50,000, plans operation of a rayon fabric mill in this vicinity. New company is headed by Woodworth L. Carpenter and James F. Armstrong, North Providence.

Industrial Rayon Corp., plans the transfer of its entire cloth division to the Covington, Va., plant, as the latest action in the rearrangement and expansion of company facilities.

International Rayon Yarns, Inc., Hoboken, N. J., will build a new boiler house at mill, for which general contract recently was let to Austin Co., Cleveland, Ohio, reported to cost close to $50,000, with equipment.

North American Rayon Corp., Elizabethton, Tenn., plans expansion in mill for increase of about 5,000,000 lb. yearly in high-tenacity rayon yarn capacity for tire-cord service, including additional buildings and installation of equipment. Project is scheduled for completion in about six months and will have a priority rating from WPB. Cost reported in excess of $2,000,000.

Paterson, N. J.—Sales of mill property have been made as follows: Helvetia Mills and Gordon Mill to Paterson Helvetra Mill Properties, Inc. Four other properties were in process of being transferred to Paterson Strange Mill Properties, Inc., formed by the same incorporators: The Granite Mill, Strange

Introducing COLACET*

Franklin's WATER REPELLENT

Especially developed for textiles, to give extra protection, greater beauty and serviceability to cotton, linen, natural silk, rayon, cellulose acetate and wool—in short to textile articles of all kinds, from aprons to uniforms.

Colacet, a concentrated wax emulsion, imparts an unusually high degree of water repellency to any fabric on which it is used, **but it does more.** It makes it spot resistant, stain and perspiration resistant, too. It adds a rich-looking sheen to the surface. It enables the fabric to more effectively resist wrinkling and wilting.

Colacet is colorless, odorless. Will not change the texture of the finished fabric. Will not harm either the skin or the most delicate material. Write today for complete technical information.

*Colacet conforms to Quartermaster Corps Tentative Specifications P.Q.D. No. 115b dated November 19, 1942

COLACET

FRANKLIN RESEARCH COMPANY

Makers of Rubber Gloss . . . PHILADELPHIA

ALDON SPINNING MILLS

ALFRED W. CAVEDON

Spinners of Fine Woolen

Merino & Specialty Yarns

SELL DIRECT TALCOTTVILLE, CONN.

★ ★

CONSTRUCTION ★ MODERNIZATION

MAINTENANCE

Anywhere in the South

DC **DANIEL CONSTRUCTION CO., INC.**

Greenville, S. C. Birmingham, Ala.

★ ★

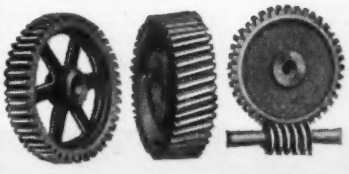
..Everything You Want in CUT GEARS CUT SPROCKETS CUT RACKS

ACCURACY DURABILITY DEPENDABILITY SERVICE SATISFACTION

The name "INDUSTRIAL" is your assurance of utmost precision in Cut Gears—Cut Sprockets—Cut Racks. Our large modern shop is equipped with nothing but the latest machines for their manufacture. Our workmen are highly skilled, because we are gear and sprocket cutting specialists . . . all of which means greater satisfaction to the user. Order your next lot from "INDUSTRIAL" and note the difference.

Industrial Cut Gears . Cut Sprockets

Spur . Bevel . Mitre
Worm . Spiral . Helical and
Internal Gears. Generated Tooth
Racks . Precision Surface Grinding.



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CHICAGO'S FASTEST GROWING GEAR PLANT

INDUSTRIAL GEAR MFG. CO.

4547 VAN BUREN STREET CHICAGO 24, ILLINOIS

WHITMAN YARNS
WORSTED • COTTON • SPUN RAYON
ARLINGTON MILLS
LAWRENCE, MASS.
•
MONOMAC SPINNING CO.
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NEW BEDFORD, MASS.
WILLIAM WHITMAN COMPANY, INC.
NEW YORK BOSTON PHILADELPHIA CHARLOTTE

Engineers
J. E. SIRRINE & COMPANY
GREENVILLE SOUTH CAROLINA

Simplified DESIGN
Flexible POWER
Better EVAPORATION
More sensitive CONTROL
SOUTHWORTH HUMIDIFIER
Experienced textile men who know the merits of previous models of Southworth Humidifiers have found improvements in Model D that make it even more reliable and efficient.
Extreme sensitivity of control, and an "airplane propeller" type fan for greater evaporation, are two outstanding features.
NOTE
This advertisement is to remind you to include Southworth Humidifiers in your after-the-war plans. Frankly, we are 100% on war work and cannot make humidifiers at the present time.
THE SOUTHWORTH MACHINE CO.
PORTLAND MAINE

Mill, Dunlop Mills, Nos. 1 and 2. It is said that the principals in the purchase are Sol and Lester Entin and H. W. Becker. About 750,000 sq. ft. of floor space is involved and about $481,000.

Tubize Chatillon Corp., New York, N. Y., with mills at Rome, Ga., and Hopewell, Va., has arranged for change of name to **Tubize Rayon Corp.**

Myra Mills has begun operations at Gastonia, N. C., making coarse numbers rayon blend yarns for the weaving trade. Myra R. Carter and A. Dewey Carter own the mill as a partnership.

Knitting Mill News

Allied Knitting Co., Belmont, N. C., is a new company which will manufacture knitted materials for underwear. Ike E. Howe is owner. There will be an initial machinery set-up of 10 machines. It was scheduled to get into operation by Dec. 1.

Belmont, N. C.—A large plant to make women's fine seamless Nylon hosiery will be built at Belmont, N. C., "as soon after the war as possible," according to Charles T. Stowe, secretary-treasurer of the Belmont Hosiery Mills, Inc.

Derby Sportswear Co., Herkimer, N. Y., has opened a branch at Utica, N. Y., on Catharine St., operating as the Kordeen Mfg. Co.

High Rock Knitting Co., Philmont, N. Y., has been reorganized acceptably to the U. S. District Court at Utica, N. Y., and it is out of the hands of T. R. Briggs, receiver. The common stock in the new company goes to Susquehanna Mills.

Judith Hosiery Co., Niota, Tenn.—Boyd Wilkins, receiver, is said to have recommended liquidation of this company.

Powell Knitting Mills Co., Brooklyn, N. Y., will occupy about 20,000 sq. ft. of floor space in local building at 248 McKibben St., for increased production. Space was recently secured under lease.

Sox, Inc., Mount Gilead, N. C., is a newly organized concern, which will buy, sell and deal in hosiery of all kinds. Authorized capital is $100,000, with $400 subscribed by D. A. Bruton, Lee Johnson, C. D. McLeod, all of Mount Gilead, and G. V. Richardson, of Star, N. C.

W. & W. Hosiery Mills, Kernersville, N. C., which was recently established by Hugh Warren and his brother, L. F. Warren, formerly of Durham, is now running on three shifts.

Rufus D. Wilson, Inc., Burlington, N. C., has taken over plant of Shenandoah (Va.) Knitting Mills, recently purchased, and will continue operation as new branch mill. W. W. Sharp, Jr., formerly general manager of Siler City (N. C.) Hosiery Mill of Mock-Judson-Vochringer, Inc., will be in charge of production at acquired mill, as well as other plants of company.

Processing Plant News

Fabric Processing Co., Cleveland, Ohio, care of Kusser, Gorman & Davis, Hickox Bldg., Cleveland, attorneys and representatives, was recently chartered.

Ernest Gsell and **Joseph Newman**, Brooklyn, N. Y., have leased space in local industrial building at 248-74 McKibben St., and will equip and occupy for new textile print works.

Independent Screen Print Corp., New York, N. Y., care of Charles Steinglass, 305 Broadway, New York, attorney and representative, have been organized with capital of $20,000, to operate a local textile print works.

Lambert Textile Printing Co., Passaic, N. J., has plans under advisement for proposed rebuilding of portion of mill, recently destroyed by fire with loss reported in excess of $100,000, including equipment.

Lanett Bleachery & Dye Works, West Point, Ga., reports for the year ended Aug. 28, 1943, a net profit of $580,903, after all charges, including taxes of $1,673,000 and a reserve for contingencies of $169,560. This compares with net a year ago of $704,303, after taxes of $1,807,000 and $220,000 reserve.

Ottary Textiles, Inc., Greenville, S. C., has been formed with authorized capital of $100,000 to manufacture and convert textiles. H. J. Haynsworth, Jr., is president-treasurer; Paul Farmer, secretary.

River Point (R. I.) Finishing Co., a new organization, is now active on finishing woolens and worsteds. Maurice Guerin is president and Charles Montague, treasurer. John Lyons, Jr., formerly of Worumbo Mfg. Co., is superintendent.

Textile Processing Co., Woonsocket, R. I., has filed notice of organization to operate a dye and bleach works in this vicinity. Lawrence A. Jarret, 190 Woodland Rd., Woonsocket, is one of heads.

12599
SUCCESSFULLY SERVING
THE WAR EFFORT . . . —
ARKANSAS PRODUCTS
Designed to meet rigid government specifications
are rendering a distinct service toward
the ultimate victory . . . —

MILDEW INHIBITORS

for various types of cotton cloth and yarn
non-toxic—non-irritating

FUNGICIDE M: a single product combining a mildew inhibitor and water repellent for producing a mildewproof water repellent finish on insect netting, tapes, sheeting, webbing, thread, etc., in one operation.

FUNGICIDE PG: for mildewproofing duck, plied-yarns, etc., by the two bath method.

FUNGICIDE GM: used in conjunction with water repellents in a one bath treatment to mildewproof cottons and impart a water repellent finish.

FUNGICIDE A: a mildewproofer for cloth coating processes . . . — used directly in the vinyl resin solution.

AQUAROL*: produces a water repellent finish on uniform cloth, overcoatings and other military fabrics . . . — may be used in a single bath treatment with Fungicide GM to impart water repellency and mildew resistance to cottons . . . — also used in single bath with Arko Fire Retardant to produce water repellency and fire resistance.

ARKO FIRE RETARDANT: for flameproofing uniform cloth, tentage, felts, etc.

CULOFIX L*: used as an after treatment in last rinse to prevent color bleeding in water of direct dyed cotton or rayon.

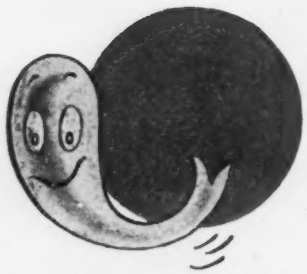
* Reg. U.S. Pat. Off.

ARKANSAS CO. INC., NEWARK, N. J.

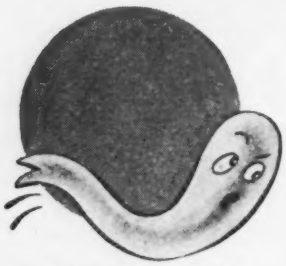
Established 40 years

HOW *PRECIPITRON** WORKS

Tests show 99½% of dirt removed by *Electric* Air Cleaning



Uncleaned air, from intake.



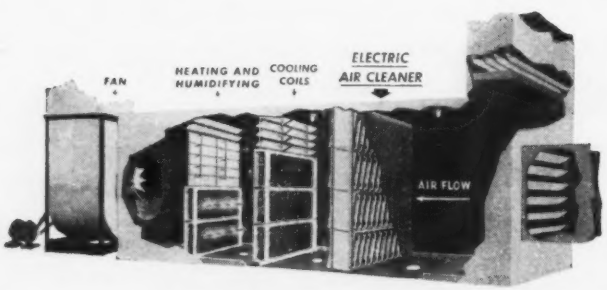
Mechanically-cleaned air.
Large particles eliminated.

Electrically-cleaned air.
Even *small* particles removed.

While there are many other methods of removing dirt from the air in textile mills, none approaches the efficiency of *electrical* air cleaning. Blackness Tests—newest and most accurate means of determining air cleaning efficiency—show that Precipitron, the Westinghouse *Electric* Air Cleaner, removes more than 90% of ALL particles down to 1/250,000 of an inch in diameter (or on a weight basis, 99½% of *all* the dirt).

In making these tests, air is taken from the intake and exhaust sides of an installed air cleaning unit and passed through separate chambers containing small pieces of porous paper. The dirt in the air adheres to this paper—and upon completion of the test, the difference in "blackness" between the two pieces is determined, providing an accurate measure of the air cleaner's efficiency.

The three circles at the left are representative of the results obtained. While ordinary air cleaners do remove a lot of dirt, they permit from *12 to 30 times as much dirt to get through* into the circulating air as an electric air cleaner. This accounts for Precipitron being consistently chosen for those installations where really *clean* air is of vital importance. And for many other installations, too, due to its high efficiency and low operating cost.



Cross section of Precipitron installation in typical air conditioning duct.

Today, in many progressive mills, Precipitron Electric Air Cleaning protects thread, yarn and cloth from damaging dirt and soot. By preventing dirt streaks, it has helped boost production.

Someday, in the not too distant future, Precipitron equipment will again be available for use in this industry. For full information on its installation and advantages, write Westinghouse Electric & Mfg. Company, Edgewater Park, Cleveland, Ohio.

*Trade-mark registered in U. S. A.

Westinghouse Precipitron

PLANTS IN 25 CITIES ○ OFFICES EVERYWHERE

Tune in on John Charles Thomas, NBC, Sundays, 2:30 p.m., E.W.T.

Electronics at Work

For the Textile Industry

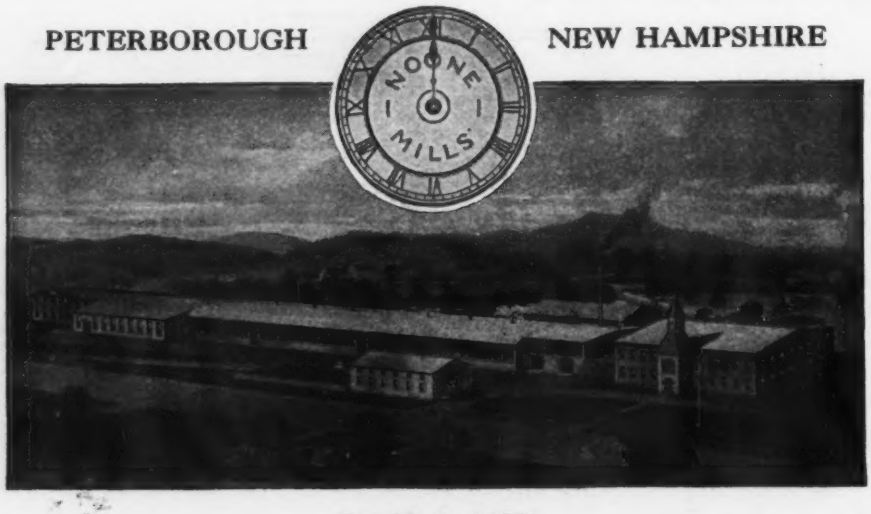
Cotton Rolls	Schreiner Calenders
Cotton and Wool Rolls	Silk Calenders
Combination Rolls	Embossing Calenders
Husk Rolls	Cloth Pilers
Paper Rolls	Water Mangles
Chasing Calenders	Dye Padders
Embossing Rolls	Squeezers
Friction Calenders	Washers
Rolling Calenders	Automatic Winders

Mullen Testers

The Joseph Noone's Sons Company

A. Erland Goyette, Owner

PETERBOROUGH NEW HAMPSHIRE



Established 1831

Noone's Standard Roller Cloths

Insist on Noone's Standard Roller Cloths for your Spinning Rolls. Noone's have been Standard since 1831.

Results and costs are what count most.

Use Noone's Roller Cloth and be assured of a Strong Round uniform yarn, the best obtainable. Eventual cost, less than any other covering.

Good spinning can always be obtained when Noone's Roller Cloth is used, as it is the properly built Cloth,—has the correct cushion and consistency, and uniform gauge.

Noone's is best by test.

Many materials have been used for Spinning Roll Covering in years past, but have eventually been discarded in favor of the dependable Woolen Roller Cloth and Leather.

Do not be misled, put your faith in the good Old American Products: Noone's Roller Cloth and Leather. If in doubt, allow us to demonstrate the superiority of our Roller Cloth and a leather cot.

Use Noone's Roller Cloths, Noone's Slasher Cloths, Noone's Clearer Cloths.

Noone's are the Pioneers in Mechanical Cloth Manufacturing in America.

WILLIAM R. NOONE & COMPANY

Selling Agents

ARNOLD T. MALONE, Manager

105 Washington Street Boston, Mass

Manufacturers of

The Reiner line of textile equipment. For 40 years it has represented the highest standards of quality and performance.

•

Full Fashioned Hosiery Machines

•

Auto Heelers

•

Tricot Machines

•

High Speed Warping Machines
(Full width and sectional)

•

Magazine Creels

•

Jack Creels

•

Thread Tensions
(Counterbalanced & Disc)

•

Kay Loom Machines

•

Raschel Machines

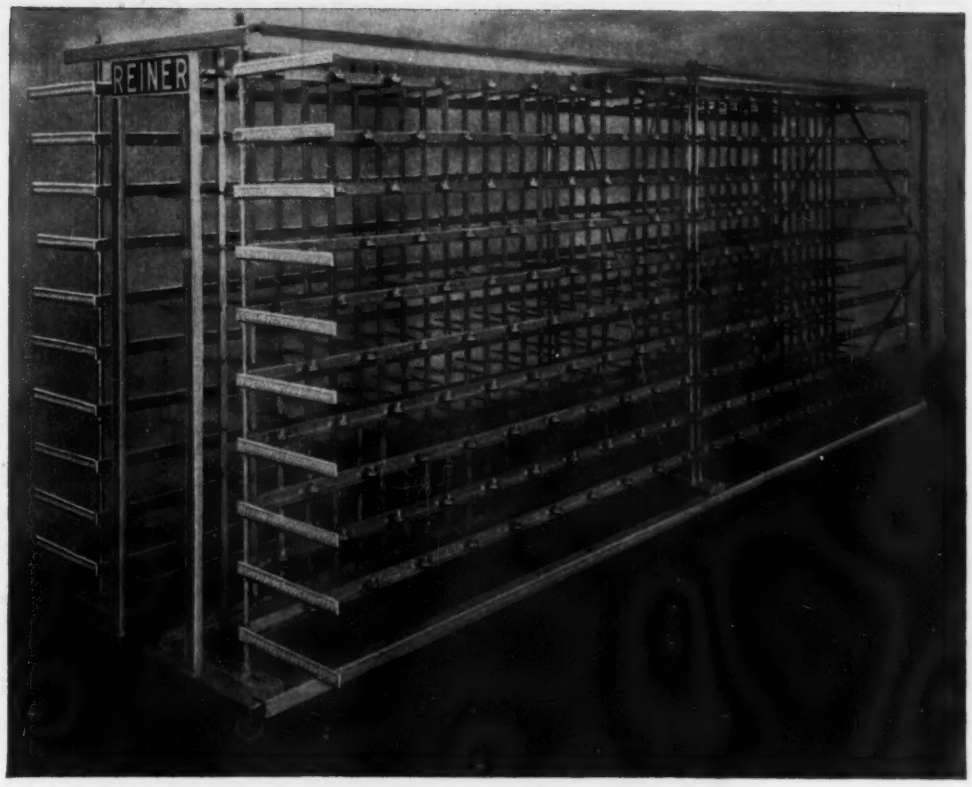
o

Automatic Embroidery Machines

•

Automatic Bobbin-Winding Machines

We carry an ample reserve supply of replacement parts for all REINER equipment now in textile mill operation.



JACK CREEL

400 End—About 16 ft. long by 5 ft. wide

CREELS BUILT IN SECTIONS AND IN ANY LENGTH

This small unit allows drawoff over end for cotton, woolen, worsted and rayons from either paper or wooden cones (8.25 cone pitch) or spools.

The Jack Creel is built 10 cones high staggered. It is equipped with heavy duty spindles, special cone holders, chrome plated Disc Tensions, porcelain eyelets in the front frame and with or without electrical stop motion. Mounted on casters, the Jack Creel is easily movable.

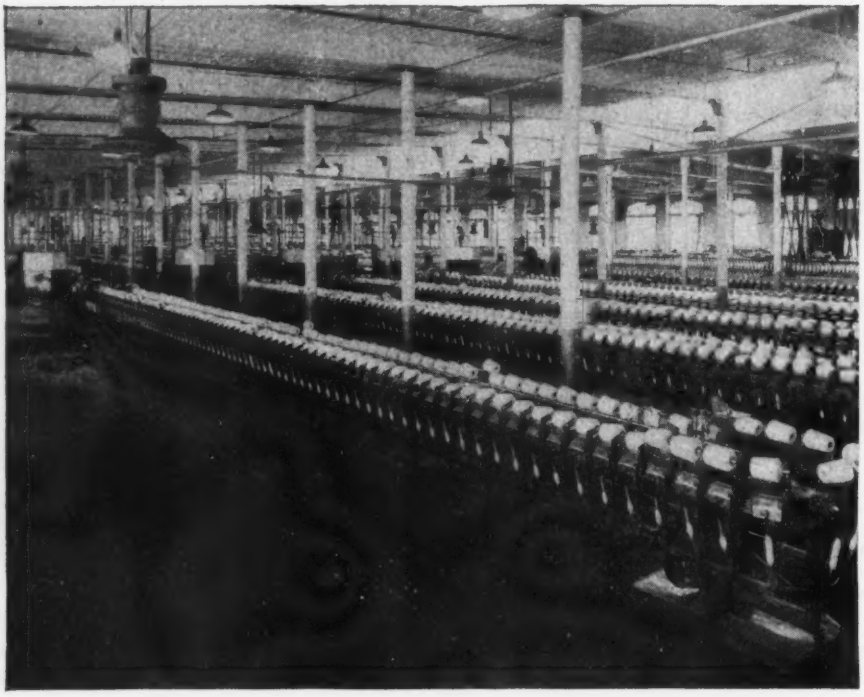
We are in a position to build warpers and creels subject to priority rating. Write for more complete information.

ROBERT
REINER
INCORPORATED
WEEHAWKEN, NEW JERSEY

Ten minutes from Times Square or Penn Bus Station Via Lincoln Tunnel

Telephones—Union 7-0502
7-0503
7-0504
7-0505

AUTOMATIC TRAVELING SPINDLE WINDING



Twisting direct from large 5 to 6 pound cheeses up to 30's cotton yarn is rapidly replacing older systems of double end packages or beams.

Yarn supply in creel is much greater giving a long run between sets

The entire investment of doublers or warpers is saved

No doubling or warping labor

No waste made on doubling or warping

Even tension on the two or more ends

Less drop ply

ABBOTT MACHINE COMPANY

WILTON, N. H.

Southern Representative, L. S. LIGON, Greenville, S. C.

OUR STORY IN PICTURES

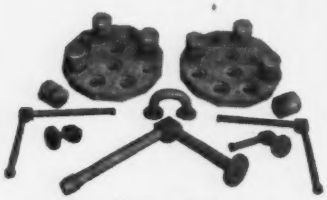
LEAVES NOTHING UNTOLD

★ Within fifty-six pages, profusely illustrated is as much of the story of the adaptability, economy and efficiency of overhead handling with AMERICAN MONORAIL EQUIPMENT that can be told without personal consultation.

If you are interested in producing more war material and at the same time preparing for post-war activities, do two things. First, send for American Mono-Rail Picture Book, see how this equipment is efficiently serving hundreds of handling jobs. Second, send for the American MonoRail Engineer to show you additional advantages to your individual problem. Write for your copy today!

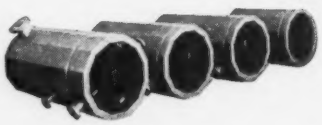
THE AMERICAN MONORAIL CO. 13108 ATHENS AVENUE CLEVELAND 7, OHIO

Porous Carbon Diffuser

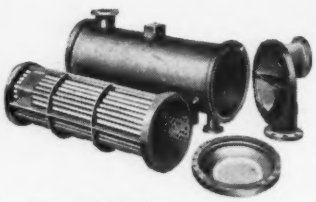


Pipe, Fittings, Bubble Caps and Trays

Headers for heat exchanger



Sections of segmental type reaction tower



Tube and shell heat exchange unit

47' high all-carbon electrostatic precipitator

For Continuous and Reliable Service

NATIONAL AND KARBATE CARBON AND GRAPHITE PRODUCTS
TRADE-MARK TRADE-MARK

are extremely versatile and readily adapted to the construction of equipment of conventional design as well as special equipment of new design.

Outstanding performance and economies, along with simplification of design, are made possible by the following unique and advantageous combination of physical and chemical properties offered by these materials.

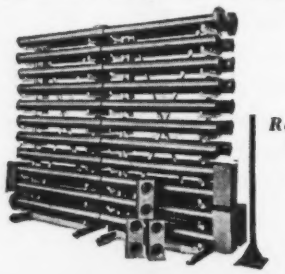
Resistance to severe thermal shock • No deformation at high temperatures • Not wet by molten metals – no sticking • Mechanical strength maintained at high temperatures • No reaction with most acids, alkalies and solvents — no contamination • High rate of heat transfer (Graphite and graphite base "Karbate" products) • Low rate of heat transfer (Carbon and carbon base "Karbate" products) • Low thermal expansion • Good electrical conductivity • Self-lubricating • Available in impervious grades • Available in highly permeable (porous carbon and graphite) grades • Easily machined and fabricated.

Practically any design can be machined or fabricated from available stock in the form of beams, blocks, slabs, brick, plates, round and rectangular rods, tubes and cylinders, pipe, fittings, valves, tower sections and tower accessories.

Special shapes or forms can be molded or extruded when quantity justifies.

The illustrations show only a few of the many diversified applications of these products.

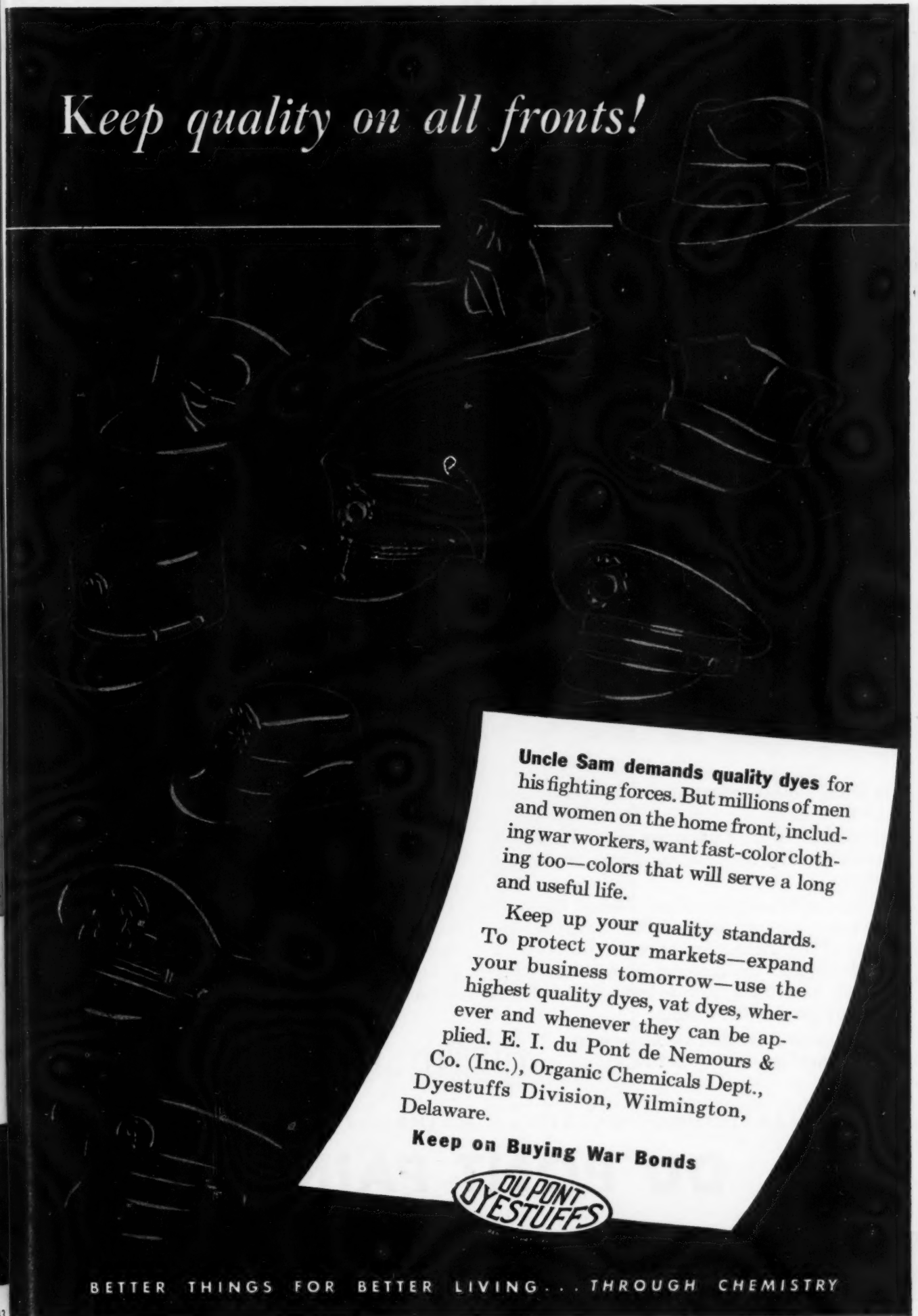
Write for descriptive literature



Return bend cooling coil

NATIONAL CARBON COMPANY, INC.
Unit of Union Carbide and Carbon Corporation
UCC
CARBON PRODUCTS DIVISION, CLEVELAND, OHIO
General Offices: 30 East 42nd St., New York, N. Y.
Branch Sales Offices: New York · Pittsburgh · Chicago · St. Louis · San Francisco

Keep quality on all fronts!



Uncle Sam demands quality dyes for his fighting forces. But millions of men and women on the home front, including war workers, want fast-color clothing too—colors that will serve a long and useful life.

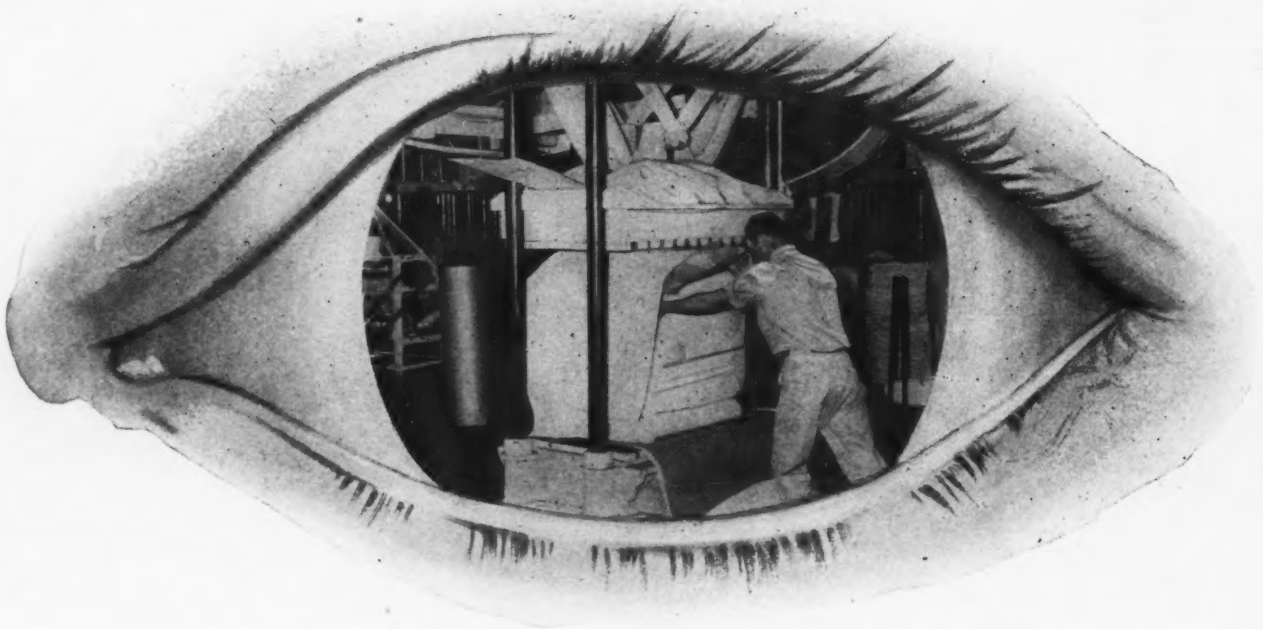
Keep up your quality standards. To protect your markets—expand your business tomorrow—use the highest quality dyes, vat dyes, wherever and whenever they can be applied. E. I. du Pont de Nemours & Co. (Inc.), Organic Chemicals Dept., Dyestuffs Division, Wilmington, Delaware.

Keep on Buying War Bonds

DU PONT DYESTUFFS

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

Du Pont
THREE DIMENSIONAL SEEING



Speeds Victory Today . . .
. . . Lights the Way to a Brighter, Safer Tomorrow

In many a plant today, Three Dimensional Seeing is working for victory. This scientifically planned method of salvaging waste light with paint is doing its share in raising production levels.

What is Three Dimensional Seeing? First, using colors selected to reflect light, improve visibility. Then, using colors to enable the operator to distinguish the material from the machine readily. Last, using colors to highlight dangerous moving parts of the machine.

Wherever it is used, workers—especially novices—enjoy better vision, work faster, more accurately. The hazard of accidents is cut to a minimum. And that intangible—employee morale—is raised.

Important as this wartime job may be, it is the post-war possibilities of Three Dimensional Seeing that capture the imagination. In the world—the better world—that is sure to come, this contribution to efficiency, to safety, and to a better manufacturing environment holds a rich promise for the future.

E. I. du Pont de Nemours & Co. (Inc.), Finishes Division, Wilmington 98, Delaware.

DU PONT

EVERY MINUTE COUNTS

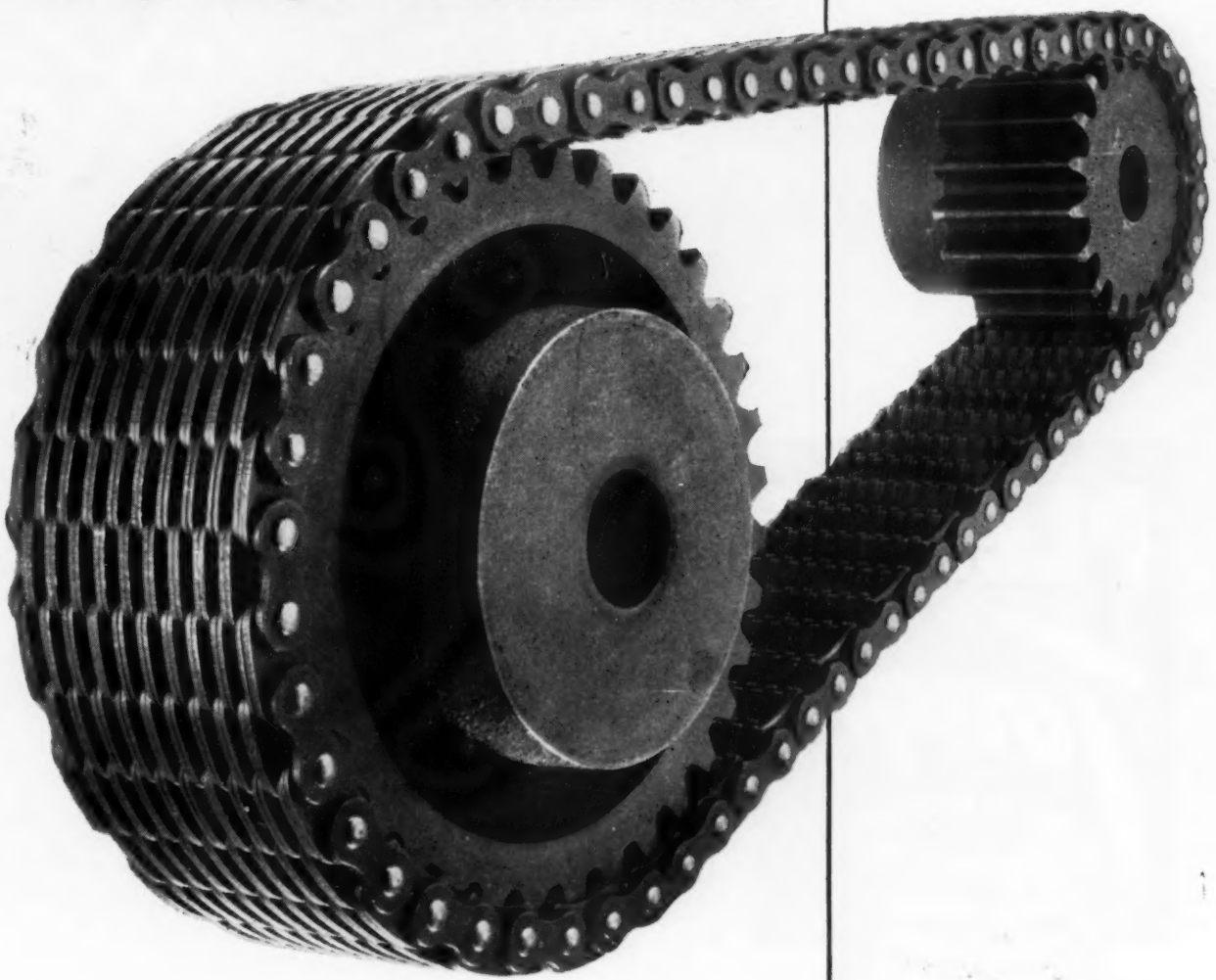
BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

DU PONT PAINTS

FOR FACTORY MAINTENANCE AND MODERNIZATION

ALL QUIET

on the Operating & Maintenance Fronts



with WHITNEY SILENT CHAINS

It's only half the story, to say that these Whitney Chain Drives are *silent* in operation. They're equally silent in another way . . . make no frequent calls for maintenance and adjustments. For extra strength and *extra life* are built into Whitney Chains first by alloy-armored steels . . . then by Whitney's exclusive double-bearing design which distributes the load over 50% greater area, both on the inside and outside of the chain bushing. This means extra margin of resistance to shocks and overloads, greater stamina to stand up under non-stop operation in war production mills. That's why Whitney Silent Chains have been standard for years on more than 20 leading makes of textile machines . . . and why it is directly to your interest to see that they are standard on all the machines you're making and operating.

THE WHITNEY CHAIN & MFG. CO., HARTFORD 2, CONN.

PLENTY Tough

Self Locking HOLLOW SET SCREWS

No "softies", these "Unbrako" Self-Locking Hollow Set Screws! Made tough at the start, they're hardened to "stand the gaff" and possess almost unbelievable strength, as proved by actual physical tests. What's more, they defy the menace of vibration and will not work loose of their own accord. When tightened as usual, the knurls *dig in and lock automatically.* Yet they can be readily removed with a wrench and used over and over again any number of times. Available in all sizes from No. 4 to 1½" diameter. Remember the name —be sure to specify "Unbrako" on your next order.

Knurling of Socket Screws originated with "Unbrako" years ago.

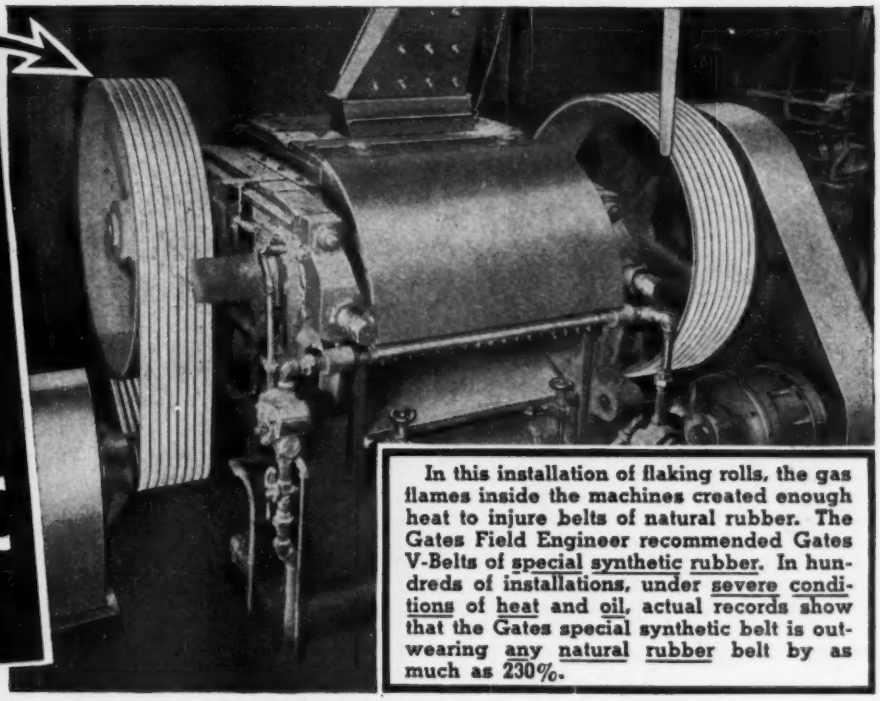
OVER 40 YEARS IN BUSINESS

STANDARD PRESSED STEEL CO.

JENKINTOWN, PENNA., BOX 871 • BRANCHES: BOSTON • DETROIT • INDIANAPOLIS • CHICAGO • ST. LOUIS • SAN FRANCISCO

Here The Gates Field Engineer Recommended

GATES BELTS *of Special* SYNTHETIC RUBBER



In this installation of flaking rolls, the gas flames inside the machines created enough heat to injure belts of natural rubber. The Gates Field Engineer recommended Gates V-Belts of special synthetic rubber. In hundreds of installations, under severe conditions of heat and oil, actual records show that the Gates special synthetic belt is outwearing any natural rubber belt by as much as 230%.

He Can Tell You Whether You Need . . . .

❶ Synthetic Rubber V-Belts

❷ Steel Cable V-Belts

❸ Cotton Cord V-Belts

❹ Static-Safety V-Belts

❺ Rayon Cord V-Belts

Whenever a drive in your plant appears to be wearing belts out faster than it should—just pick up your phone and call the Gates Field Engineer.

He is a specialist in drive operation and he can quickly diagnose any trouble you are having. In most cases he can correct that trouble very easily and without recourse to using V-Belts of special structure.

There are, however, countless drives where V-Belts having special characteristics will prove to be the most efficient and economical that you can use.

The flaking rolls, pictured above, are a case in point. For more than five years now, Gates has been making special synthetic V-Belts—and the records in hundreds of applications show that, under severe conditions of heat and oil, these special synthetic belts are wearing 2 times to 2½ times as long as any belt of natural rubber.

There are other types of drives on which V-Belts with load-carrying members composed of flexible steel cables — or of rayon cords — will prove to be the most desirable application. Again, a Static-Safety V-Belt may best fit your special needs.

In any case, the wisest move you can make is to phone your Gates Field Engineer. Your telephone directory will give you his number. He will put all of his specialized knowledge and experience at your disposal—and he will always recommend the practice that will be most efficient and economical for you.

4312.

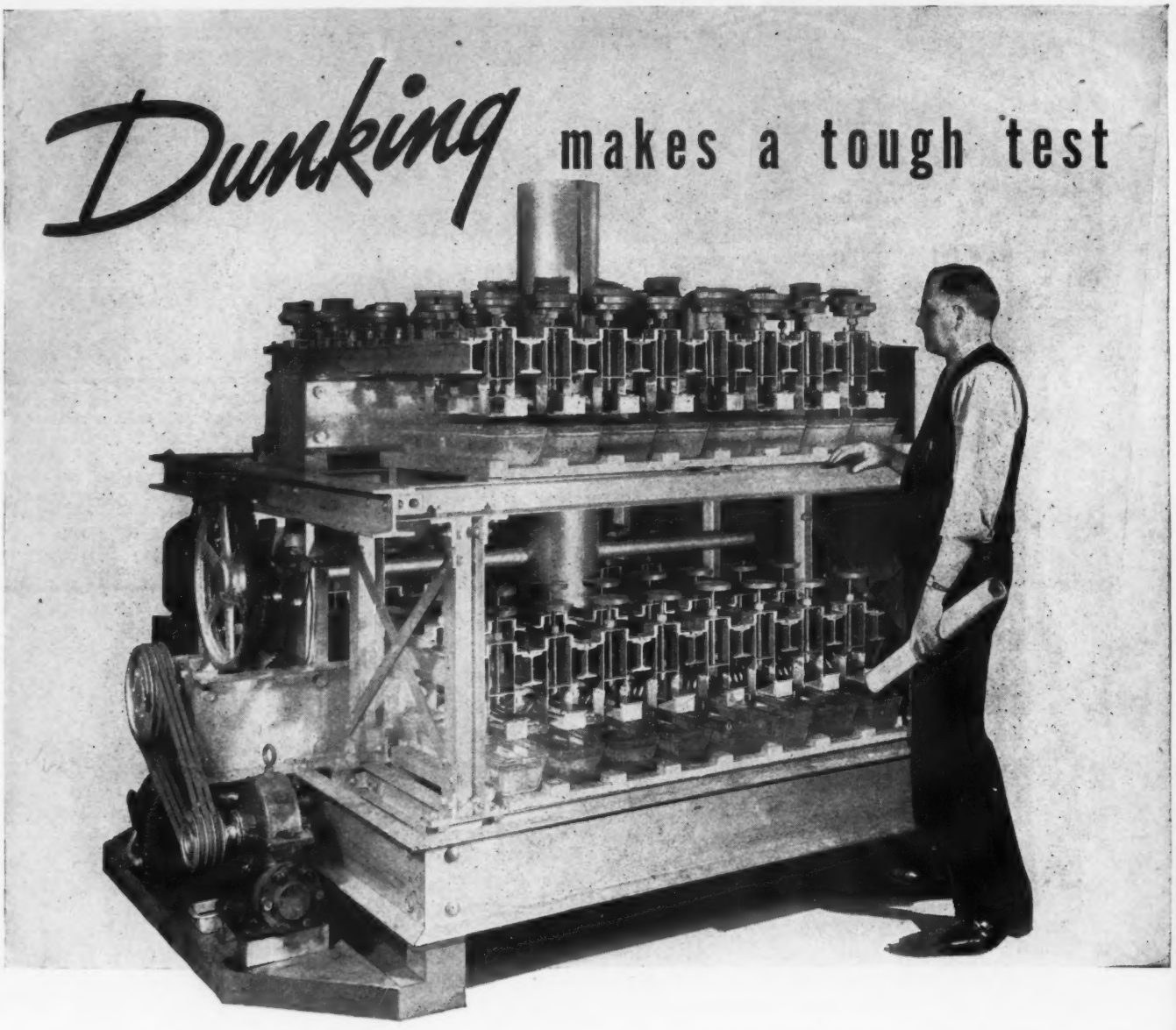
THE GATES RUBBER COMPANY

Engineering Offices and Stocks in All Large Industrial Centers

GATES VULCO ROPE DRIVES

CHICAGO, ILL. 549 West Washington
DALLAS, TEXAS 2213 Griffin Street
NEW YORK CITY 215-219 Fourth Avenue
BIRMINGHAM, ALA. 801-2 Liberty National Life Building
DENVER, COLO. 999 South Broadway
CHARLOTTE, N. CAROLINA 507 Builders' Building
GREENVILLE, S. CAROLINA 104 West Washington Street
ATLANTA, GA. 738 C. & S. National Bank Building

Dunking makes a tough test



. . . but apparatus like this proves Alcoa Aluminum Alloys before you put them to work

You want to be certain that the construction materials you are selecting for use can stand up under corrosive conditions. Well, here's a machine, in constant use at Aluminum Research Laboratories, which exposes Aluminum Alloys to various kinds of corrosive liquids.

Dozens of samples are tested simultaneously; different alloys in various forms, extrusions, castings, rolled shapes and sheet. Stressed and unstressed pieces are placed side by side. At regular intervals, the machine "dunks" them into the liquids to be encountered in service, then pulls them out. A housing (not shown here) around the machine makes it possible to keep atmospheres at temperatures and humidities simulating service conditions.

Day after day this test goes on, until we can say—"There's the Alcoa Aluminum Alloy best suited to your job."

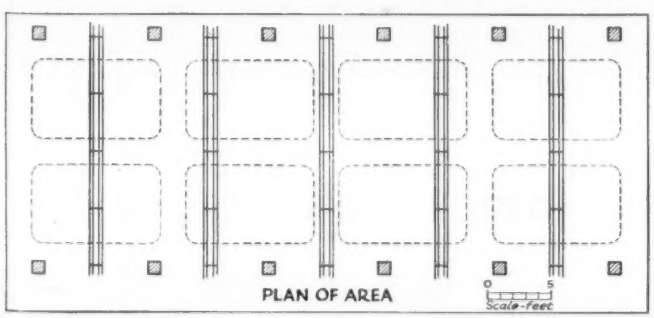
This pre-testing, like dozens of other similar services available to Alcoa's customers, helps account for the better performance of Alcoa Aluminum when it gets on a job. It's another reason why those postwar specifications you're writing should read, "ALCOA ALUMINUM". ALUMINUM COMPANY OF AMERICA, Gulf Building, Pittsburgh, Pennsylvania.

ALCOA ALUMINUM

G-E LIGHTING RESEARCH TAKES A LOOK AT YOUR POST-WAR WEAVE ROOM

IF your textile mills don't have modern lighting like this now, you are probably planning to have it after the war. For one lesson that has come out of today's urgent war production programs is that good lighting pays for itself in better, more efficient production, fewer rejects, and better employee morale. Tomorrow, lighting costs will be even more important to you than they are today. And that's where G-E Mazda lamps will help. For General Electric research has been constantly at work improving these lamps to provide more light at lower cost. Tomorrow you'll be able to have better light and more light at lower cost than ever before with General Electric Mazda lamps . . . the kind that are "made to stay brighter longer."

Before Pearl Harbor, this textile company—one of whose weave rooms is shown here — had used fluorescent lighting with G-E Mazda F lamps over a 9-months' period in four states.



In that time the company received substantial benefits including: (1) An increase in weaving efficiency on automobile fabrics from 81% to 84%; (2) A decrease of 22% in defects and mending costs; (3) An increase in weaving efficiency on another type of auto fabric from 83% to 87.7%; (4) A decrease of 25% in mending costs (same looms and same yarns being used in every instance); (5) A jump in lighting efficiency from 18 to 40 footcandles, and (6) An increase in mill operatives' earnings through easier, quicker, and better production.

MADE TO STAY BRIGHTER LONGER

THE BEST INVESTMENT IN THE WORLD IS IN THIS COUNTRY'S FUTURE—BUY WAR BONDS

G-E MAZDA LAMPS

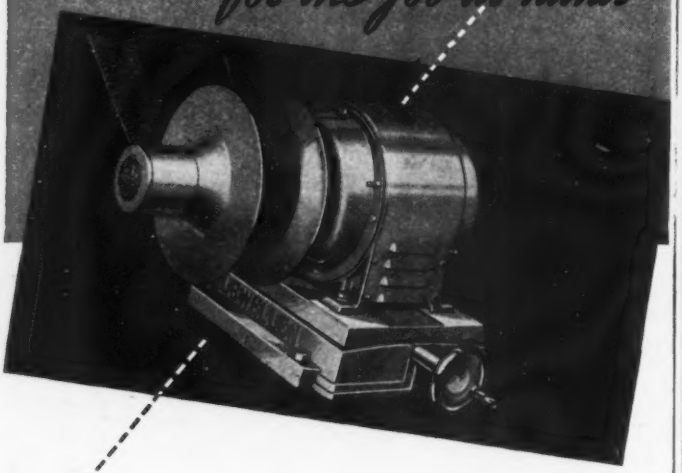
GENERAL ELECTRIC

Hear the General Electric radio programs: "The G-E All-Girl Orchestra," Sunday, 10 p. m., EWT, NBC; "The World Today" news every weekday, 6:45 p. m., EWT, CBS.

When you have the

RIGHT SPEED

for the job at hand



PRODUCTION *MOUNTS!*

★ Use Lewellen Variable-Speed Motor Pulleys on your fixed-speed machines. Use them where space is limited or where it is neither necessary nor practical to use Lewellen Transmissions. Watch production INCREASE as you have the exact speed needed to meet production requirements. *Sizes for all motor horsepower and speeds from fractional to 7½ hp. Speed range 3 to 1 for all pulley sizes. (One size has a speed range of 2¾ to 1.)*

Look at these features and you'll wonder why a Lewellen costs no more than other standard pulleys

1. *The adjustment of the motor and pulley is a straight line motion. The belt travels on a fixed center line.* The machine shaft pulley need be no wider than the belt. Changing speed does not twist nor curl the belt, nor change the center line of the belt. A sheave or narrow, flat pulley may be used on driven shaft.

2. *The machined disc hub and enclosing cap provide a concentric damped spring mounting.* Constant torque performance is obtained, even under irregular load conditions.

3. *The pulley is accurately machined to fit the diameter, length and keyway dimensions of the motor standard shaft.* Two set screws are included.

4. *Pressure lubrication reaches all bearing surfaces through a single Alemite fitting.* All working parts, including the spring, are enclosed for safety and protection. The grease stays in—the dirt stays out.

LEWELLEN MANUFACTURING CO., COLUMBUS, INDIANA

LEWELLEN

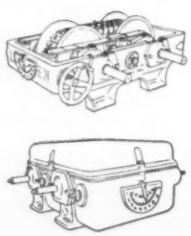
Variable Speed

TRANSMISSIONS

•

Variable Speed

MOTOR PULLEYS



★ **Lewellen knows speed control**

Factoring **CAN SOLVE**

POST WAR PROBLEMS

Credit checking will become more and more difficult after the war due to changing economic conditions.

Likewise the need for more working capital to increase production and sales in order to meet competition will be necessary.

With nearly ninety years of service to Manufacturers, Merchants and Selling Agents, we offer a plan to relieve credit and financial worries.

•

James Talcott, Inc.

1854 FACTORS 1943

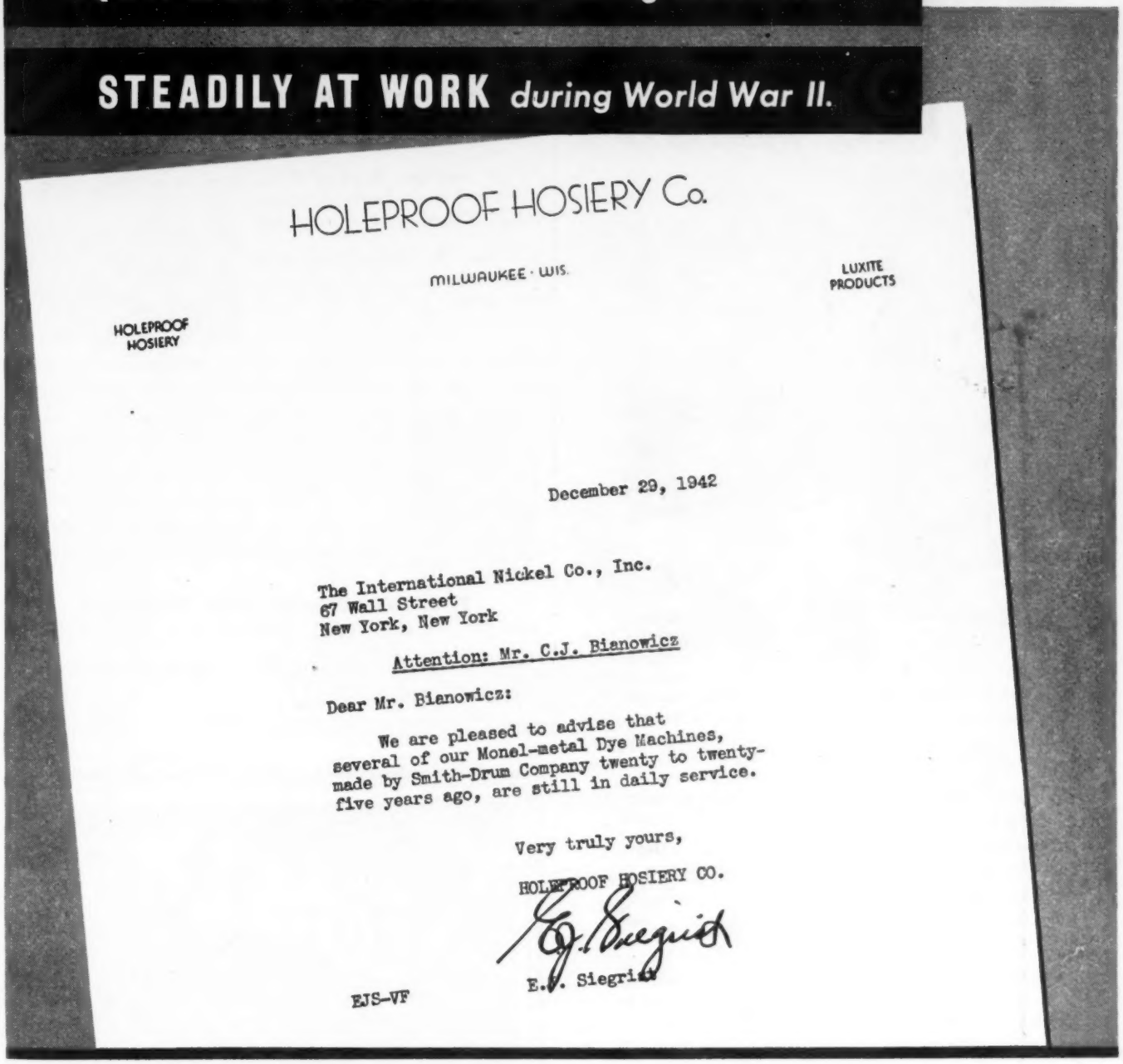
225 Fourth Ave. New York 3, N. Y.

Southern Correspondent

Clarence Knowles, Atlanta 3, Ga.

EQUIPMENT INSTALLED *during World War I.*

STEADILY AT WORK *during World War II.*



HOLEPROOF HOSIERY Co.

MILWAUKEE · WIS.

LUXITE PRODUCTS

HOLEPROOF HOSIERY

December 29, 1942

The International Nickel Co., Inc.
67 Wall Street
New York, New York

Attention: Mr. C.J. Bianowicz

Dear Mr. Bianowicz:

We are pleased to advise that several of our Monel-metal Dye Machines, made by Smith-Drum Company twenty to twenty-five years ago, are still in daily service.

Very truly yours,

HOLEPROOF HOSIERY CO.

E.J. Siegrist

EJS-VF

Twenty-five years is a long time for a dye machine to work . . . steadily.

But not *too* long, if the machine is made of MONEL.

Monel machines put in service by Holeproof Hosiery 25 years ago are at work today, as the letter reproduced here testifies.

This long, trouble-free service of Monel equipment has special importance in days like this, when repair parts and service are so hard to get.

Now, all new Monel output goes to the armed forces. After victory, this durable, corrosion-resistant metal will be available again for fine textile equipment.

THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL STREET, NEW YORK 5, N. Y.

What can go by AIR EXPRESS?

Practically anything! Huge pieces of machinery weighing many tons, for instance, can be shipped by AIR EXPRESS, *when dis-assembled and packed in smaller units.*

IF your shipment can go by rail, it can usually go by AIR EXPRESS, providing it fits into an Airline Transport (when oversized, the shipment can often be dis-assembled into smaller units).

No special packing is needed, either. In fact, the careful handling so typical of AIR EXPRESS eliminates the need for expensive cases or massive crates. Consequently when you pack for AIR EXPRESS, *pack compactly*—thus reducing weight and shipping cost. And for fastest delivery—*ship when ready*—as early in the day as possible.

This 3-mile-a-minute service is available direct to more than 350 U.S. cities and to scores of foreign countries.

AIR EXPRESS RATES REDUCED

As a result of the great volume of Air Express traffic created by wartime demands and the increased efficiency developed to satisfy these demands...Air Express rates within the United States have been substantially reduced, in some instances as much as 12½%, depending on the weight of the shipment and the distance it moves. Consequently, shippers nationwide are now saving an average of 10½% on air cargo costs.

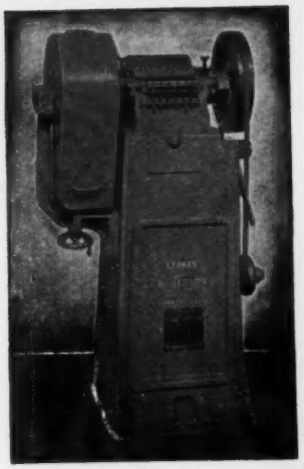
ASK for our new 1943-44 CALENDAR-BLOTTER. Write to Dept. PR-13, Railway Express Agency, 230 Park Avenue, New York 17, N. Y.

AIR EXPRESS

Gets there FIRST

Phone RAILWAY EXPRESS AGENCY, AIR EXPRESS DIVISION
Representing the AIRLINES of the United States

New! Universal Fibre Cutter



- **Makes 500 to 20,000 knife cuts per minute. Handles 4 to 8 tops or equivalent simultaneously.**
- **For cutting Rayon, Silk, Wool, Flax, Jute, Cotton, other Fibres—Wet or Dry.**
- **With 4 interchangeable cutter heads produces full range of fibres, from Flock to 8″ length.**

This is an improved machine, accurate, flexible, highly productive . . . for wet or dry cutting. Features include Self-sharpening Knives, Tension Release for Feed, Hand-wheel adjustments while operating, Ball Bearings, Balanced Heavy-duty Cutter Heads, Enclosed Motor, Clutch for quickly stopping feed rolls, Variable-speed drive synchronized with feed, and others. Fully described in Bulletin 42-FC.

F. J. STOKES MACHINE COMPANY
6004 Tabor Road Olney P. O. Phila., Pa.

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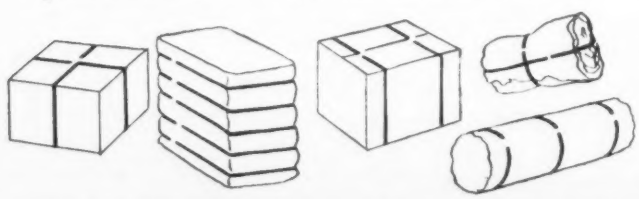

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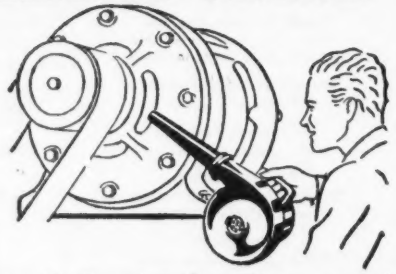

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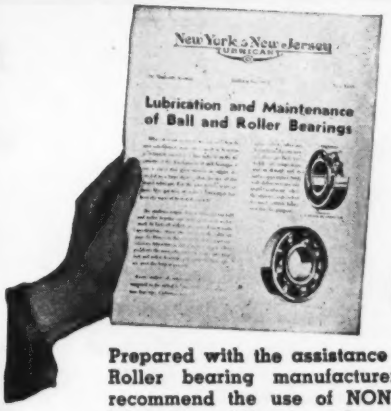

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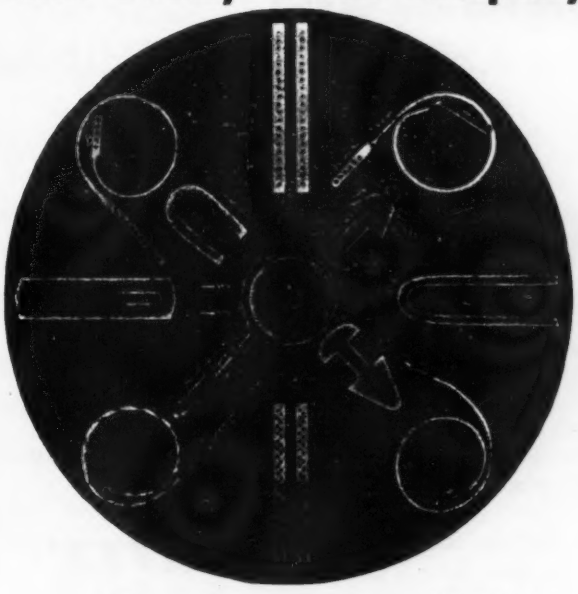

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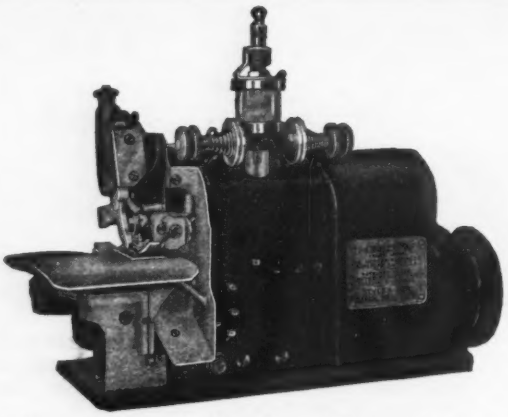

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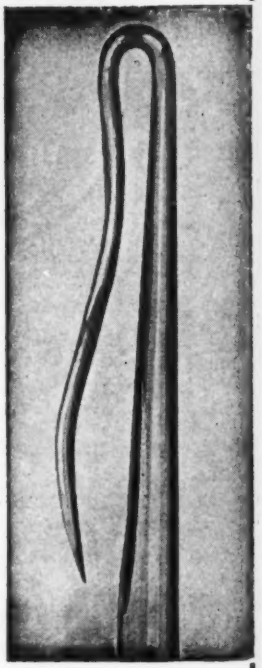

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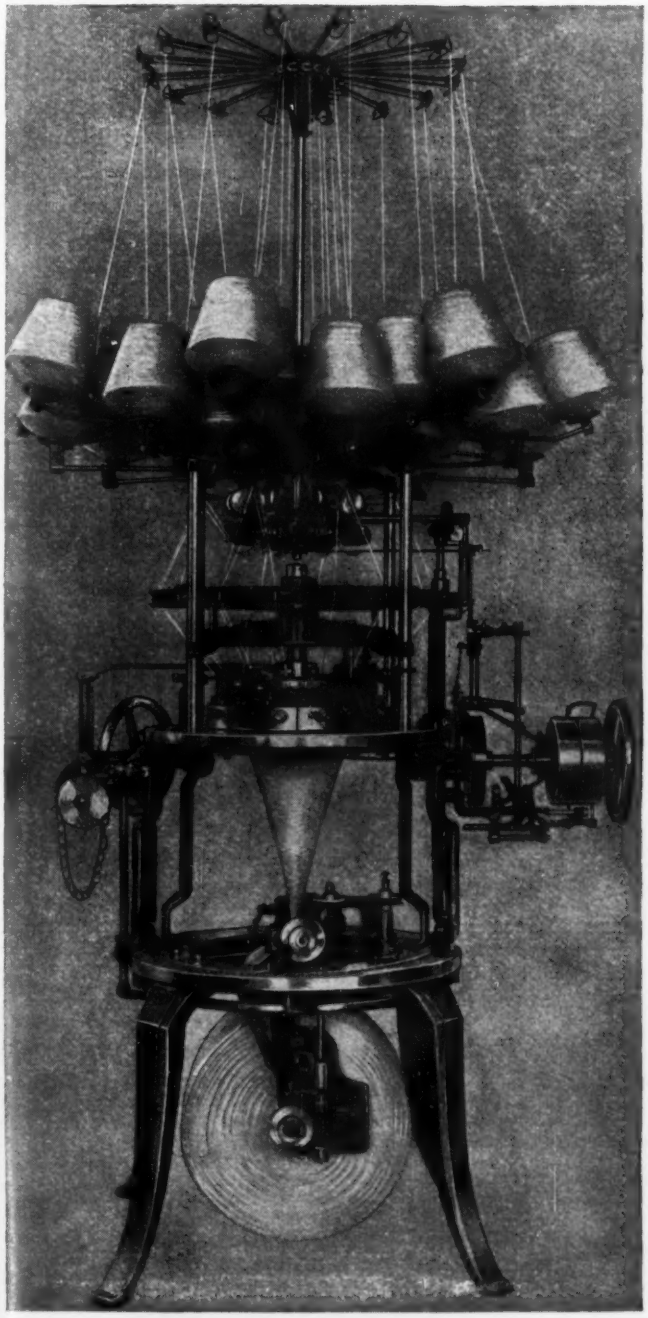

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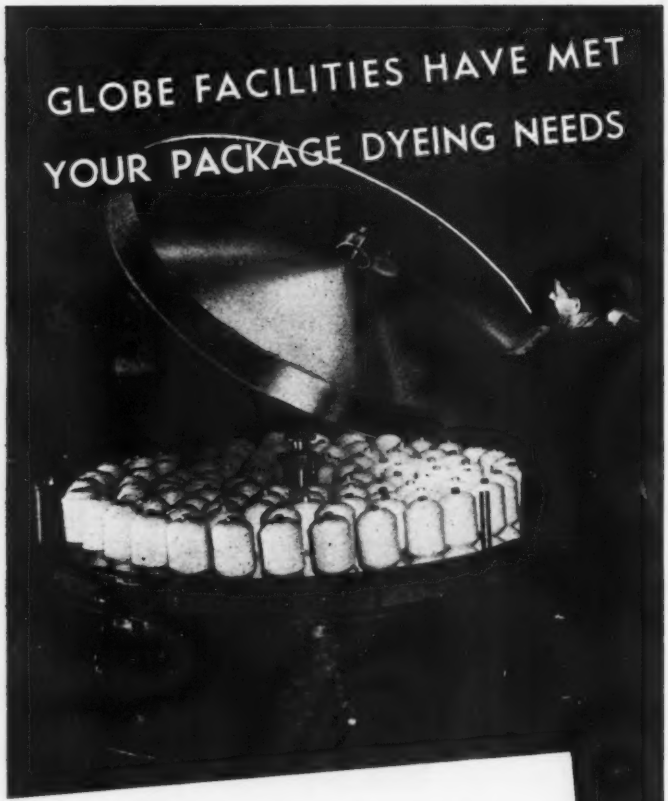

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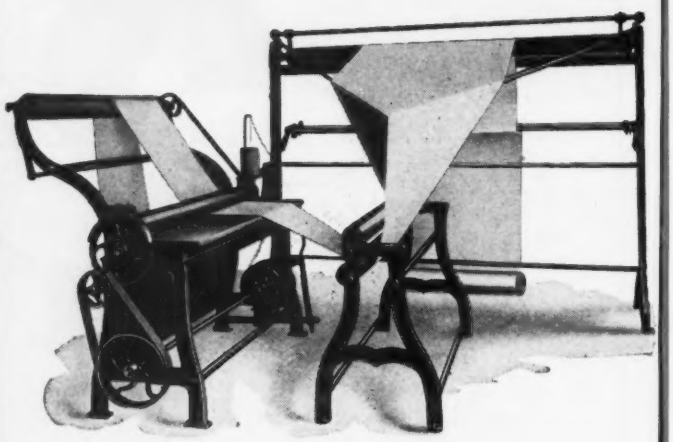

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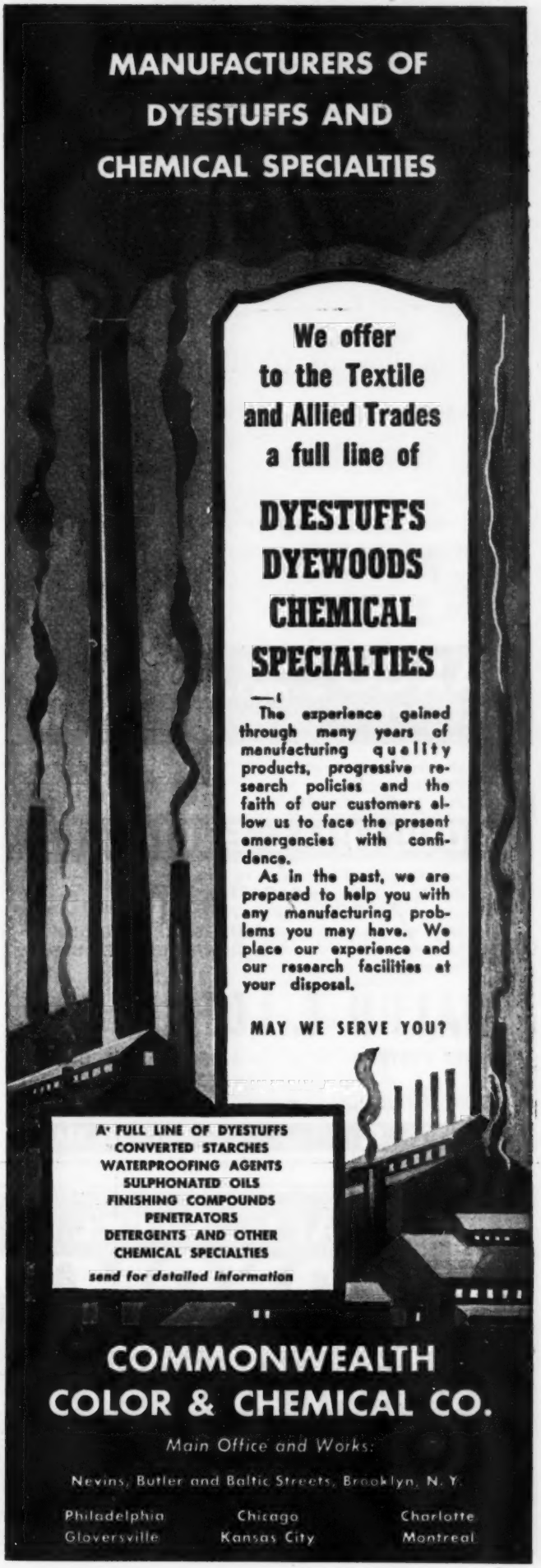

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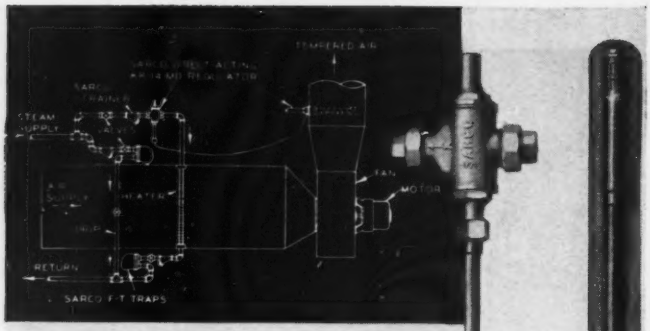

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GREENVILLE, S.C. — FALL RIVER, MASS.

When You Change Your Address . .

It will help us keep your copies of TEXTILE WORLD coming to you each month if you will promptly advise us of any change of address. A penny postcard will do—but please indicate your *old* and *new* address, and any new company connection or position.

TEXTILE WORLD
330 West 42 Street — New York, N. Y.

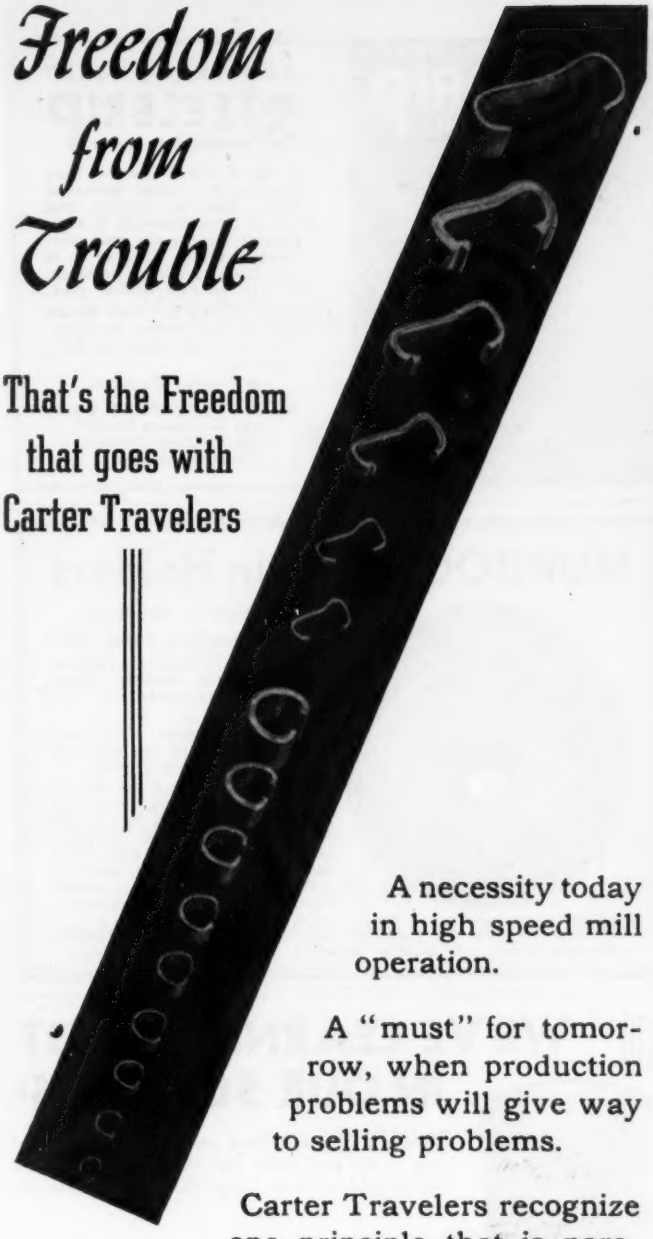
ALL STEEL
ECONOMY BALING PRESSES
ALL SIZES FOR ALL PURPOSES
LARGEST LINE BUILT IN U.S.A.

ECONOMY BALER CO., DEPT. J ANN ARBOR, MICH., U.S.A.

REPRESENTATIVES:
New York Office: 100 Gold St.
Philadelphia Office: Drexel Bldg.
Terrell Machine Co., 1200 No. Church St., Charlotte, N. C.
Boston Office: 601 Atlantic Ave.
Other Sales and Service Branches in most important Cities.

Freedom from Trouble

That's the Freedom that goes with Carter Travelers



A necessity today in high speed mill operation.

A "must" for tomorrow, when production problems will give way to selling problems.

Carter Travelers recognize one principle that is paramount in their manufacture. They *must* be "trouble-free" in actual mill use.

We know of no more rigid requirement that we can apply.

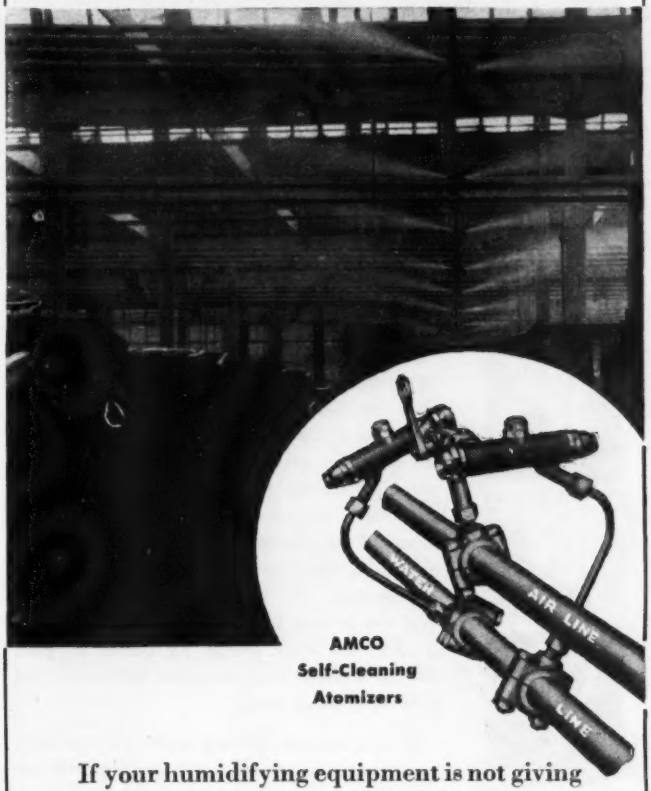
THE ABC TRAVELER LINE

CARTER TRAVELER COMPANY
DIVISION OF
A. B. CARTER, INC.
GASTONIA, N. C.

SALES REPRESENTATIVES

R. D. HUGHES SALES CO., 1812 MAIN STREET, DALLAS, TEXAS
Eastern (Including Canada) C. E. HERRICK, 44 FRANKLIN STREET, PROVIDENCE, RHODE ISLAND
European: MELLOR, BROMLEY & CO., LTD., LEICESTER, ENGLAND
Mexico: LEO LENK, APARTADO NO. 533, MEXICO CITY, D. F.

HUMIDIFY WITH SELF-CLEANING ATOMIZERS



AMCO Self-Cleaning Atomizers

If your humidifying equipment is not giving you top performance on all of the following points, you are not getting the best there is in humidification. . . .

AUTOMATICALLY SELF-CLEANING
•
CONSTANT, FULL CAPACITY DELIVERY
•
NO DRIP—NO FEATHERING DOWN
•
MINIMUM MAINTENANCE COST
•
LONG LIFE

These are the reasons why more and more mills are standardizing on AMCO Self-Cleaning Atomizers. For the complete story, write or call American Moistening Company, Providence, R. I. . . . Boston . . . Atlanta . . . Charlotte.

Amco
HUMIDIFICATION
Speeds Production

THIS MAN COMES TO SOLVE NOT "SELL"

He knows what it's all about!

PERFECT BALANCE
Weighs same on both sides. Straight part of shank is in center of gravity. Distributes lubricant and wears evenly. Will not pivot twisting self and rayon.

THE NE-BOW
Prevents yarn ends flying out, provides ample head-room for threading—prevents binding on ring. Note "bend inward" at top of horn.

HEAT CONTROL
for better metal—dominates "U. S." production! Carburizing and tempering ovens are electrically controlled through pyrometers for better performance.

THE BEVEL EDGE
Great pioneering "U.S." contribution to smooth spinning, twisting. Eliminating angular edges, gives uniformity of tension more even yarn, less "fly."

Every "U. S." Ring Traveler man is a real mill man—an expert on all those conditions that influence ring traveler performance. He's come up from the bottom . . . been an overseer or super . . . run frames himself. He knows about traveler design, balance, lubrication, etc. He knows the importance of metallurgical control of metal, be it bronze or steel, to make it serve better and last longer. He knows about yarn weight and stock, and twist and heat and spindle speeds. In other words, he comes to your mill to review your traveler problems and help you solve them.

If you are not getting good service from your present traveler, he'll quickly find out why and tell you so. If a better type or design of ring traveler will give you better results, he'll discuss that, too. If a change in traveler design would reduce the number of travelers you use and cut down the stock you have to carry, he can help there.

All our research—all the years of experience we have, are no good unless we can focus them on your spinning and twisting ring traveler problems. And we stand ready to do just that, at your convenience, whenever you write or wire.

U. S. RING TRAVELERS

• SOLD UNDER THESE TRADE NAMES

Bowen Round Point Travelers
Bowen Square Point Travelers
Bowen Improved Vertical Bronze
Bowen Patented Bevel Edge
Bowen Flat Oval and Round Wire Travelers
Bowen Patented Ne-Bow Vertical
Bowen Patented Vertical Offset

U.S. RING TRAVELER CO
AMOS M. BOWEN
President and Treasurer
PROVIDENCE RHODE ISLAND

ARMSTRONG - BRAY
STEELGRIP
Flexible Belt Lacing

8 sizes boxed or in long lengths for wide conveyor belts. Best for rubber and fabric belts because it compresses belt ends and prevents fraying. Applied in a few minutes with a hammer. 2-piece hinged rocker pins.

Also, WIREGRIP Belt Hooks that fit any lacing machine. Immediate delivery on both types.

Write for Circulars

ARMSTRONG-BRAY & CO.
"The Belt Lacing People"
5340 Northwest Highway
Chicago, U. S. A.

MURDOCK Bobbin Holders

Two exclusive Features Affording Long Life:

1. Automatic-bobbin holders equipped with holding wings electrically hardened all the way through.

2. Holding wings held positively in position by skeleton washer—no sliding around.

We make holders for ¾" to 2½" bobbin heads, including large-package wood and paper bobbins, also special bobbins. Duplex holders take both automatic and non-automatic bobbins.

Holders for all types of mules, frames, twisters, and winders.

MURDOCK & GEB CO., Franklin, Mass.
Manufacturers of Bobbin Holders for Over Fifty Years

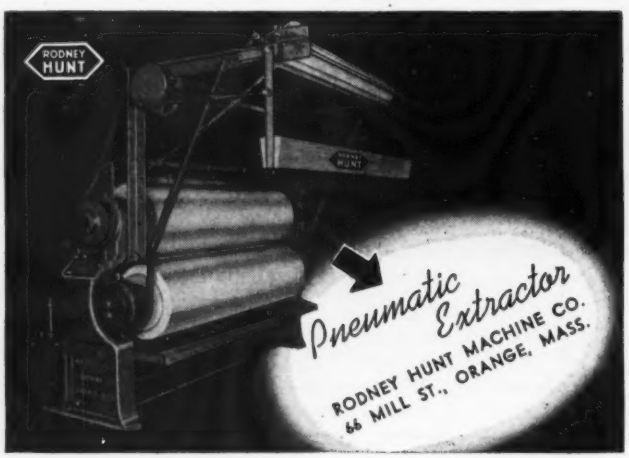
WE'VE LEARNED A LOT IN OUR 50 YEARS!

50 years of specialized experience in producing tanks and tubs for the textile industry *has taught us some things that will be valuable to you!*

Let us tell you about our complete Caldwell service, which includes Stainless Steel-lined tanks and tubs—round, rectangular and special shapes. *Catalog on request.*

W. E. CALDWELL CO.
Incorporated
2060 Brook St. Louisville, Ky.

Caldwell TANKS AND TOWERS



Style 20

LANE

The IDEAL BASKET for

LOOPERS

SEAMERS

RIBBERS

GENERAL

W. T. LANE & BROS., Inc.

Manufacturers **: POUGHKEEPSIE, N. Y.**

MAILING LISTS THAT WORK . . .

McGraw-Hill Industrial Mailing Lists are a direct route to today's purchase-controlling executives and technicians in practically every major industry.

These names are of particular value now when most manufacturers are experiencing constantly increasing difficulty in maintaining their own lists.

Probably no other organization is as well equipped as McGraw-Hill to solve the complicated problem of list maintenance during this period of unparalleled changes in industrial personnel. These lists are compiled from exclusive sources, based on hundreds of thousands of mail questionnaires and the reports of a nation-wide field staff, and are maintained on a twenty-four hour basis.

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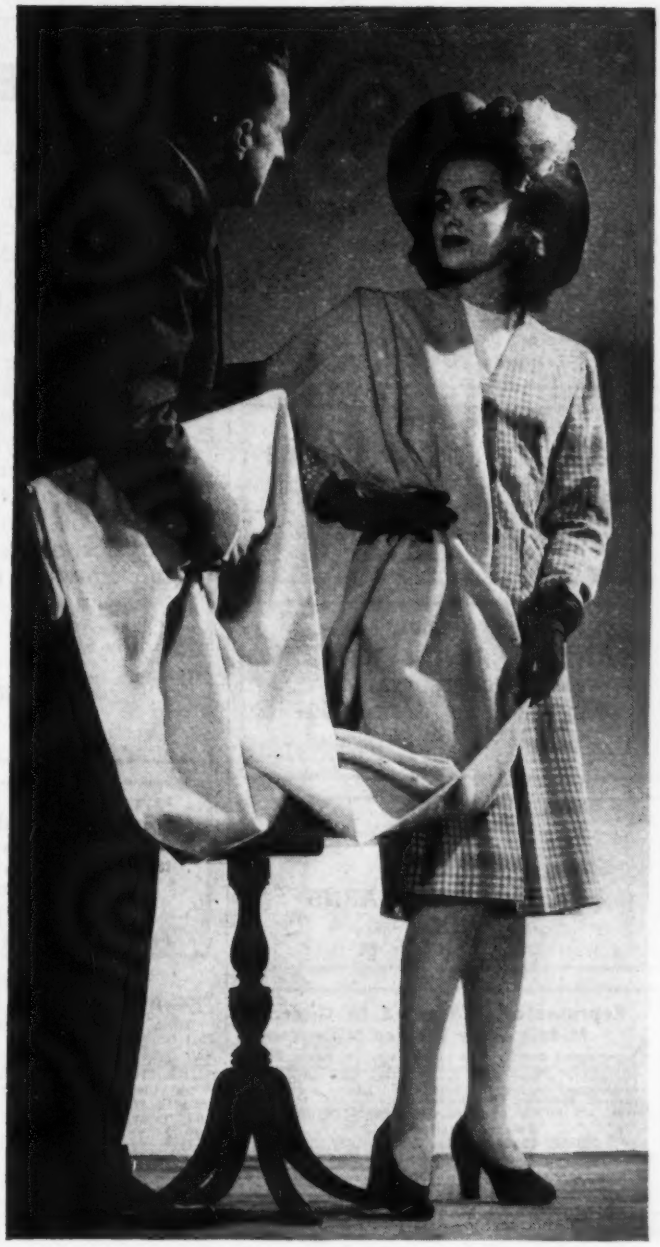
McGraw-Hill Publishing Co., Inc.

DIRECT MAIL DIVISION

330 West 42nd Street **New York, N. Y.**



PERFECT NAPPING that builds reputations!

If you want perfect finished goods, with a full uniform nap, you'll get them with keenly penetrating Wissco Napper Clothing. The precision ground, long, polished, tapering points not only produce better finished work—but, reduce energy and prevent waste. Glass hardened points, too! Microscopically inspected! Write for literature. Wickwire Spencer Steel Co., 500 Fifth Avenue, N. Y. C. 18, Buffalo, Chicago, San Francisco, Worcester.

Wissco

CARD AND NAPPER CLOTHING

WANTED

RAYON CHEMIST

Cuprammonium Process

Position offers an excellent opportunity to qualified person able to assume technical management.
Plant located in picturesque New England town.
Give full particulars of experience and references.

Write to: **P-723**, Textile World
330 W. 42nd St., New York 18, N. Y.

WANTED

General Manager and Plant Executive

to be in charge of all operations of the plant making coating for fabrics (application of coating on fabrics). Must be capable of creating and organizing a new plant. Only specialists thoroughly knowing all operations in this field need apply. Please give all information in first letter. Answers treated confidentially.

P-725, Textile World
330 West 42nd St., New York 18, N. Y.

WANTED

CARDER AND COMBER

ON WORSTED YARN

Mail Full Details in First Letter

P-722, Textile World
330 W. 42nd St., New York 18, N. Y.

DYER

WANTED

ON WORSTED YARNS

P-721, Textile World
330 West 42nd St., New York 18, N. Y.

Representative Wanted to Cover Middle West Woolen Mills

Experienced man needed to sell a basic Card Room Supply on commission for old established firm. Preferably a man now covering the area with an established product but who would like to increase present earnings. Numerous mills in the Middle West are steady users of our product. Write

RW-717, Textile World
330 W. 42nd St., New York 18, N. Y.

RESEARCH POSITIONS

The established research organization of a sound cotton textile concern is expanding its activities to cover a thorough and basic study of the physical and chemical properties of its products, and has openings which may be filled by junior physicists or chemists, advanced textile technologists, or textile engineers. The work will require analytical ability, vision and initiative, and a sound knowledge of the basic elements of mathematics and of physics, chemistry or engineering. Previous textile experience is not necessary, and emphasis will be placed on progressive thought and ability in the sciences.

These positions are permanent and offer good opportunity for advancement and professional accomplishment; salaries are open. Research headquarters are in Western Massachusetts. Negotiations will be confidential and in compliance with W.M.C. regulations. Full details of training, experience, and interests, and salary expected, are requested in first communication.

P-724, Textile World
330 West 42nd St., New York 18, N. Y.

Over Forty-five Years of Dependable and Confidential EMPLOYMENT SERVICE
for textile mills, converters and selling houses requiring managers, superintendents, stylers, designers, salesmen, overseers, second hands, fixers, etc.
'Phone, wire or write us your personnel requirements.

CHARLES P. RAYMOND SERVICE, Inc.
Phone: Liberty 6547 **294 Washington Street, Boston 8, Mass.**

POSITIONS VACANT

MILL MANAGER wanted for narrow textile mill located in Virginia, either broad goods or narrow goods experience necessary. Give as much detail as possible, past experience, education, age, salary expected, etc. Please write P-702, Textile World, 330 W. 42nd St., New York 18, N. Y.

HOSIERY MACHINE FIXER wanted by knitting machine manufacturer to supervise, repair and instruct on hand operated circular hosiery machine. Excellent opportunity. Ainslie Knitting Machine Co., 750 Grand St., Brooklyn, N. Y.

GRADUATE ENGINEER to serve as Assistant Engineer in large Dyehouse in Western Maryland. Work consists principally of maintenance of equipment. Several years' experience in this line desirable. Permanent opening. Applicant must not be engaged in war work and must have sanction of the local War Manpower Commission. P-716, Textile World, 330 W. 42nd St., New York 18, N. Y.

EXPERIENCED WORSTED CARDER and COMBER wanted for small plant, wonderful opportunity. strictly confidential. P-726, Textile World, 330 W. 42nd St., New York 18, N. Y.

RESEARCH DYE CHEMIST—A splendid opportunity for a man with experience in synthesis of dyestuffs and intermediates. This man must have initiative, and imagination. He must have ability to develop new dyes to meet current and post-war problems. This opening is on the research staff of a large progressive organization manufacturing chemicals, plastics, and cellulose derivatives. Applicants should submit record of personal data, education, experience and salary expected. Applicants must not be engaged in war work and must have sanction of the local War Manpower Commission. P 727, Textile World, 330 W. 42nd St., New York 18, N. Y.

POSITIONS WANTED

COTTON YARN Mill Man. Carding or Spinning or can Oversee both or Superintend Cotton Yarn Mill. PW-709, Textile World, 330 W. 42nd St., New York 18, N. Y.

SUPERINTENDENT, Textile School graduate 40 years of age, married, 15 years experience in silk rayon and cotton desires change. PW-707, Textile World, 330 W. 42nd St., New York 18, N. Y.

SUPERINTENDENT OF WOOLEN Carding and Spinning Mill wants position. 15 years experience, best references. Will be available January 1st. Willing to go anywhere but prefer Eastern States. Write PW-728, Textile World, 330 W. 42nd St., New York 18, N. Y.

SUPERINTENDENT OVERSEER Cotton Rayon weaving by a young man experienced with dress and sheer goods linings fancy and novelty box and dobby weaves C&K Stafford and Draper looms. PW-729, Textile World, 330 W. 42nd St., New York 18, N. Y.

EXPERIENCED JACQUARDMAN. Thorough knowledge of designing and cardcutting, draft deferred. Seeks connection with progressive mill. PW-730, 330 W. 42nd St., New York 18, N. Y.

TEXTILE STYLIST and production man. 6 years of practical mill and business experience. Philadelphia Textile School graduate. Age 25. Draft deferred. Interested in a proposition with a future. PW-731, Textile World, 330 W. 42nd St., New York 18, N. Y.

CHEMIST, ORGANIC MAJOR, Master of Arts, seeking war work. Prefers position in Mill, Dye House, Finishing or Printing Plant or with firm manufacturing synthetic yarn. Will consider other offers Presently employed but not at highest skill. Release obtainable. Age 27, single. Draft 2-A. PW-732, Textile World, 330 W. 42nd St., New York 18, N. Y.

WANTED

WANTED—One James Barker double apron, 2 bank condenser, 40". W-733, Textile World, 520 N. Michigan Ave. Chicago 11, Ill.

PROFESSIONAL SERVICES

LANCASTER, ALLWINE & ROMMEL

Interesting booklet concerning Inventions, Patents, Trade-Marks and Copyrights, together with Schedule of Government and Attorney's Fees, sent without obligation. Simply ask for "booklet and schedule."

Established 1915

Patents & Trade-Marks

Suite 448, 815—15th St., N. Y, Washington, D. C.

(AVAILABLE)

PRACTICAL PURCHASING AGENT

I have a friend who, I believe, would make some firm a good practical purchasing agent. He not only has had practical experience in all departments of a cotton mill, but now does the purchasing for a small plant as a part of his duties. About 40 years old. Draft class 3-AH. If interested, may I send him to you for personal interview.

F. GORDON COBB
Box 2671, Charlotte, N. C.

(AVAILABLE)

WORSTED WOOLEN EXPERT

Mill man, young, over 20 years experience, all capacities, inside spinning — weaving — finishing mills; well acquainted with industrial efficiency, cost reduction, production management; seeks association with any of above in supervisory capacity.

PW-734, Textile World
330 W. 42nd St., New York 18, N. Y.

Gray Goods Mills—ATTENTION

I have a post-war plan, and am looking for a mill interested in changing present set-up. To sell finished goods to cutters, mail order, and chain store trades. Over 25 years experience in the converting field as merchandiser and sales manager, wide acquaintance.

BO-718, Textile World
330 W. 42nd St., New York 18, N. Y.

Interested in Purchasing Worsted Yarns in All Sizes and Blends.

NORTH POLE KNITTING MILLS, INC.
10 West 33rd Street New York 1, N. Y.
CHickering 4-3890-1-2-3-4

(Additional Wanted Advertising on page 200)

"We're all set now on plans for 1944 . . ."

I had to replace textile machines

My mill has been working 7 days a week, 3 shifts a day, but I faced a sharp reduction in war demands and I couldn't make definite plans *for the future* . . . because I couldn't quickly replace old, worn out machines, or sell the ones I didn't need and get others. I hesitated to pick up something unknown in "USED EQUIPMENT." Then . . .

Jim told me about "MLC"

—Three letters that stand for the name of a Dealer with more than 18 years experience in the Textile field . . . a Dealer I could DEPEND upon, not only to supply the type of Textile machinery I needed, but to pick DEPENDABLE equipment that would stand up in service . . . and to Liquidate, too. "MLC" saved me weeks on deliveries, and helped me rapidly to dispose of my "obsolete" equipment.

"A case or a CARLOAD"

was one expression they used . . . meaning the same prompt, reliable, courteous, and efficient service on *any size* order, large or small. I got *lower prices*, too, by placing orders through "MLC" rather than directly. And "MLC" not only saved me money on textile equipment buying and selling, but also in getting tools and parts needed for mill rearrangement and maintenance . . . We're all set now on plans for 1944!

Partial List of Stock Items

MLC

A partial list of items ready for immediate delivery—

2—Sets Whitin Model "C" Combers including:
2—Sliver Lappers 20 end derby back
2—Ribbon Lappers, 4 head
16—Combers, 8 head, 11¾" lap
6—Doubling, Boarding & Winding Machines, 36" to 48"
1—28 Stick Klauder Weldon Monel Lined Non-Hoist Skein Dyeing Machine, motor driven, with Aluminum Poles
1—44" Van Vlaanderen Copper Basket Top Vertical Motor Driven Extractor
1—48" Tolhurst Copper Basket Belt Driven Extractor
4—60" V.V. Rubber covered basket Extractors, Belt dr.
1—114" 4 roll Mangle with 24 dry cans
9—E & H Folding Machines 40" to 46"
2—Shultz Fulling Mills
1—36" C & M Fearnaught Picker
1—66" Voelker Dble Bed Cloth Press
1—66½" Parks & Woolson Single Shear
1—106" 2 Blade Schulze Double Shear
6—264 Sp. Whitin Band Dr. Spinning Frames, 1¾" r., 3" gge.
1—56 spindle Draper, Band driven 2½" Ring 3½" gauge Twister, arranged for motor drive—no motor
2—80 spindle Hopedale Band driven Twisters, 4½" Rings, 5½" Gauge, Belt Driven
3—110 sp. Hopedale 3" Ring band driven Twisters
500M 7½" Automatic Filling Bobbins
10M Warp Spinning Bobbins

MACHINERY LIQUIDATING COMPANY

OPA REGISTRATION NUMBER 789

EST. MLC 1923

31-33 West 42nd Street NEW YORK, N. Y.

DOMESTIC TELEPHONE PEnnsylvania 6-8014 EXPORT

DEALERS IN TEXTILE MACHINERY, ACCESSORIES AND MILL SUPPLIES

FOR SALE

16—Double Deck Spinners
11—Winders, 64 Spindles each
8—5 B Machines, 4 and 5 inch spacing
1—Single Truck Skein Dryer
1—26" Fletcher Extractor
1—International Electric Time Clock
100,000 Assorted Spools & Bobbins

FS-711, Textile World
330 W. 42nd St., New York 18, N. Y.

WANTED

NORMAN M. McDOWELL

342 E. 142 St. ASSOCIATES Bronx, N. Y.

REBUILT & USED BUY WITH CONFIDENCE MELROSE 5-1772-3

EXCEPTIONAL VALUES - - - - PROMPT DELIVERY

1—3-cyl. WOOLEN CARD 48" x 60"
1—CLOTH DOUBLER 54" clock and mtr.
1—FOLDING AND DOUBLING 60" Unit
1—DRYER SKEIN 46" Double Stick Conveyor
2—GRINDERS for 80" and 86" Nappers
6—NAPPERS 80" D.A. 20 and 36 Rolls
2—NAPPERS Knit Goods 80", 20 Rolls
1—NAPPER 90" S.A. 14 Rolls
2—MULES 360 spindles each, 2⅛" gauge
1—PALMER Unit 60" blanket, 3 copper dry cans
2—ROTARY STEAM PRESSES 66" double bed
3—MANGLES 44" to 66" Heavy Duty
2—SETS SQUEEZE ROLLS 72" Iron and rubber rolls
2—SETS SQUEEZE ROLLS 60" both rubber rolls
8—SHEARS 36" to 88" Single and Double Blade Units
2—SEWING MACHINES Railway Type
4—WOOL SPINNING FRAMES Whitin Models A & C
1—TENTER FRAME 30' x 60" Clamp Style

MISCELLANEOUS:
Bristle Brushes, Rubber rolls, expander rolls, etc.

ONLY A FEW OF THE MANY UNITS AVAILABLE. SEND FOR OUR COMPLETE CATALOG. LIST YOUR SURPLUS EQUIPMENT WITH US.

WANT TO BUY TANKS

3—50,000 to 100,000 Gal. Cap. Elevated Steel Water Tanks on Towers.
2—500 to 1000 Ft. Air Compressors.
3—500 to 1000 GPM Fire Pumps.

RUSSELL STANHOPE
60 EAST 42nd ST. NEW YORK, N. Y.

FOR SALE

6—Draper Looms 82" R.S. 20 harness, heavy worsted, motor drive 550 volts.
6—C&K Veri-best 4x1, heavy Worsted Looms, 82" R.S., 20 harness, motor drive, 550 volts.
18000—Whitin Tape Drive Spindles, complete with base and bolster, including 140,000 warp bobbins, 9" overall.
2—D.&F. Dressing Frames, 82".
2—Sargent Yarn Conditioning Machines.
2—Westinghouse Generators, 125 h.p., 55 KW, 850 RPM, Style 4151.

BTS

BOBBINS • SPOOLS • SUPPLIES • BOX TRUCK
Direct Factory Agents Walter L. Parker Bobbin & Spool Co.

BAY STATE TEXTILE CO.
220 HARTWELL STREET • FALL RIVER, MASS.

WANTED

SIPP MAGAZINE CREEL

340 or More Ends Required

W-720, Textile World
330 W. 42nd St., New York 18, N. Y.

FOR SALE

9—Chinchilla machines—60"
1—Shear, single, C & M—66"
1—Miller Cloth Press—66"
1—Steam brush P & W—66"
5—Crane knitting machine tables—20"
9—Crane knitting machine tables—26"
4—Crane knitting machine tables—30"
9—Payne bottle bobbin winders—24 spindle
1—Payne bottle bobbin winder—48 spindle
1—Universal, 14 end, cone winder
66—Cuff knitters—1" to 5"
1—Kane gas steam boiler—7 HP
1—Ingersoll Rand air compressor—7 x 5
8—Motors—2 phase, 60 cycle, 220 volts, from 2 to 15 HP
Various sized Sturtevant blowers
20,000 Mule bobbins

WARREN FABRICS CO., INC., West Warren, Mass.

WANTED

Two 18"x50" Rubber Mills

preferable speed of rolls 63 feet and 33 feet per minute designed for 75 horse power capacity with or without motors.

JOHNSON & JOHNSON
4949 W. 65th St. Chicago
Attention—J. M. Haviland
Telephone—PORtsmouth 6400

FOR SALE

LATE TYPE
WILDMAN 28 CUT
SPRING NEEDLE MACHINES

5-11 inch 6-14 inch
6-12 inch 8-15 inch
6-13 inch 7-16 inch
8-17 inch

FS-719, Textile World
330 W. 42nd St., New York 18, N. Y.

FOR SALE

100 M 8" Wool Filling Bobbins. 75 M 8¾" Automatic Filling Bobbins. Suitable for woolen or worsted weaving. Price and samples on request.

FS-697, Textile World
330 W. 42nd St., New York 18, N. Y.

New "SEARCHLIGHT" Advertisements

received by December 26th will appear in January issue, subject to space limitations.

Departmental Staff
TEXTILE WORLD
330 West 42nd St., New York 18, N. Y.

WANTED

Your Obsolete Sewing Threads

Send samples and quantities for quick disposal.

W-675, Textile World
330 W. 42nd St., New York 18, N. Y.

FOR SALE

30" LOOMS

76—Draper 30" Model E used looms in good condition. Complete with Lacoy top motions, pulleys, shafting, beams, etc. Located in South.

AMES BAG CO.
10 East 40th St. New York, N. Y.

Christmas Gifts From "CONSOLIDATED"

TO AMERICA'S VICTORY-PRODUCTION INDUSTRIES

PRINTING MACHINES
8—R. B. & F. 3 to 10 color print Machines 40" to 64" wide, complete.

CALENDARS
1—V.V. ball bearing Calendar, 50".

AGERS
1—18' x 60" Ager.
1—30' Steel Ager.
1—Haveg Patch Ager.

KETTLES
20—Textile Copper Steam Jacketed Color Kettles, tilting type, agitated, 30 to 100 gallons capacity.

DRYERS
3—National Loop Dryers, 28', 33', 65', 70'lg.
2—P & S Airley Dryers.
1—Phila. Dry Mach. Co. Hurricane Continuous Skein Dryer.
2—Frank Bailey Truck Dryers with extra trucks for skein & tube yarns.
1—P & S 36' Loop Dryer 90" poles. Rebuilt by National. Equipped with high speed booster fans, airfins.
1—Single Truck Dryer.

PRINT PADDER
1—3-Roll Print Padder, dry tower with unit heater.

FULLING MILLS
6—Rodney-Hunt Fulling Mills, gear drive.
2—Single Line Fulling Mills, rubber rolls.

CAN DRYERS
450—Dry Cans, 50" to 108" face, 23" to 84" dia.

SCOURING & DYEING MACHINES
2—Haveg Dye. or Washing Machines, completely enclosed, 51" wide.
1—Sargent 3-Bowl Skein Scouring Machine.
10—Klauder-Weldon Skein Dye Machines.
1—Obermaier 400# Package Dyeing Machine.

NAPPERS
8—D & F. Woonsocket Nappers, 60" to 90".
2—Single Roll Nappers or Brushing Machines.

DYE JIGGS
6—Dye Jiggs, 54", rubber covered rolls.
1—Battery 4-Butterworth stainless steel lined Dye Jiggs, 45".
1—Battery 4-Morrison stainless steel lined Dye Jiggs, 50", tilting expanders.

DYE BECKS
25—Butterworth, Morrison & V. V. 6' & 8' Dye Becks, stainless steel and wood tubs.
10—Morrison & V.V. Dye Becks.

6—Tatham 40" Roller Cards, Steel Cylinders. Machines can be seen in operating position.

TENTER FRAMES
1—W & J. 95' x 50" Swing Tenter Frame.

FLAT FOLDERS
4—E & H. Flat Folders, 42" to 60".

OPEN WASHERS
1—Continuous Full Width Washer, consisting of 3 sections, 4 nips each section, 66".
1—60" Continuous Boil-Off Machine, steel tanks.

ROPE SOAPERS
1—V.V. Continuous Square Formation Washer.

SHEARS
3—P & W. Double Blade Shears, 66", with list saving device.
1—P & W. 3-Blade Shear, 60½" with list saving device.

BLEACHING
8—Bleaching 4-5 ton Kiers, vomit type.
1—5-ton Kier, circulating type.
2—Lincoln 2-roll Rope Squeeze rolls.

LOOMS
42—Crompton & Knowles 82" 4 x 1 Automatic Looms.

BEAMER-BATCHERS
4—V.V. 50" & 55" Beamers.

EXTRACTORS
3—V.V. & Tolhurst 60" rubber & copper basket Extractors.
1—Tolhurst 48" Underslung open top Extractor, copper basket.
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12—Tolhurst, American Laundry, Adams Troy & Bach copper lined Extractor 17", 20", 26", 28" & 32".

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PADDERS, MANGLES, QUETCHES
4—Textile 50" 2-Roll Dye Padders.
5—Butterworth 50" 2-Roll Starch Mangles.
2—Textile 80" 2-Roll Mangles.
8—Butterworth & Morrison 2 & 3-Roll Quetches, 50", 60" & 72" wide.
5—Quetches, 2 & 3-Roll, 36-72".
1—James Hunter 50" Water Mangle.

WATER SOFTENERS
1—Permutit Water Softener, 103" hg. 63# wd.
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1—Schick All Steel Press.

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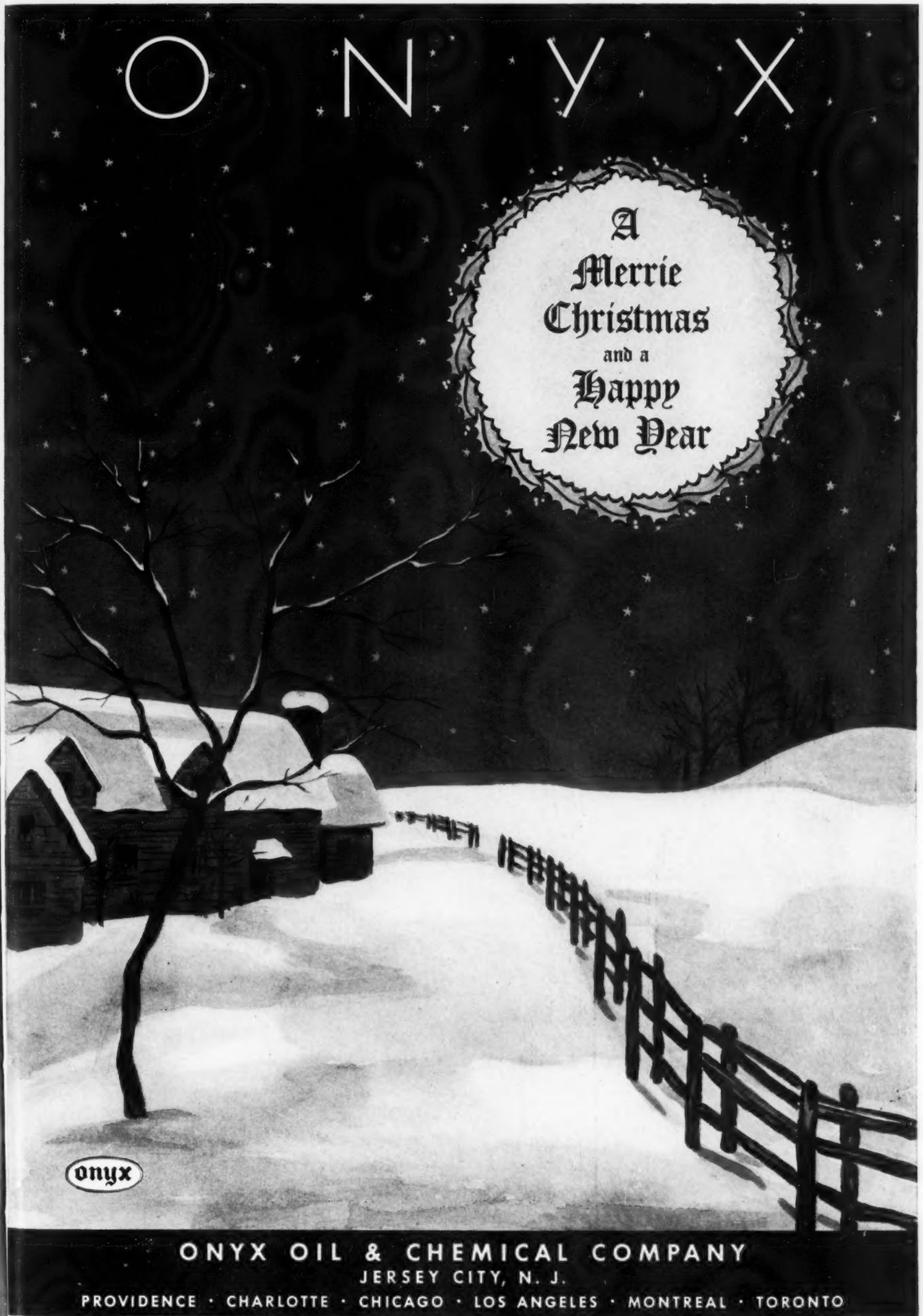
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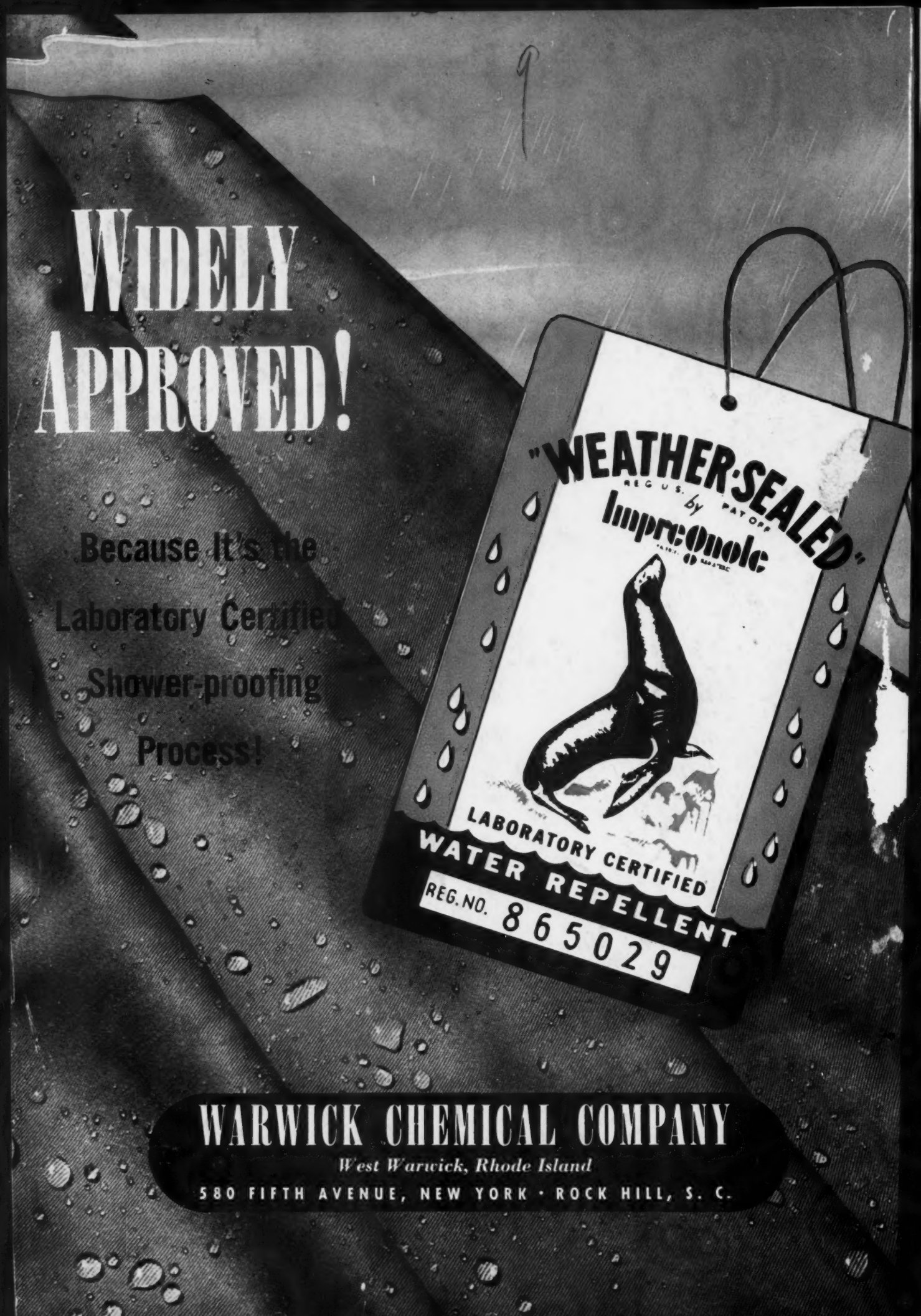
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